City of SACRAMENTO
Community Development

300 Richards Blvd., 3rd Floor
Sacramento, CA 95811

Help Line: 916-264-5011
CityofSacramento.org/dsd

Plan Review Resubmittal

Plan Check #: COM-2307306 **Date:** 09.20.2023

Job Address: 905 North Ave **Project Name:** North Ave Half-Plexes

Project Contact: Sarah N Ellis **Phone #:** 916.440.6765

E-mail: sarah@ellis-architects.com **Fax#:**

Resubmittal for Cycle 2 ☐ **Cycle 3** ☐ **Cycle 4*** ☑ **Cycle 5*** ☐ **Beyond*** __ **# of plans submitted** 1 **EPC** ☑

DISCIPLINE	CHECK EACH DISCIPLINE BEING REROUTED	ANY CHANGES TO PREVIOUSLY APPROVED PLANS?*		ANY CHANGES TO THE ORIGINALLY PROPOSED SCOPE OF WORK?*	
		Yes	No	Yes	No
BUILDING (STRUCTURAL):			✔		✔
LIFE-SAFETY:			✔		✔
PLUMBING:			✔		✔
MECHANICAL:			✔		✔
ELECTRICAL:	✔		✔		✔
FIRE:	✔		✔		✔
PLANNING:			✔		✔
DEVELOPMENT ENGINEERING:	✔		✔		✔
UTILITIES:	✔		✔		✔
LANDSCAPE ARCHITECT:			✔		✔
AIR QUALITY:					
CONSTRUCTION DEBRIS:					
ALL DISCIPLINES UPDATE HOURS IN COMPUTER		*COUNTER TECHNICIAN:*			

Description of any changes to previously approved plans*: Changes in regards to plan check comments.

Description of any changes/revisions to the originally proposed scope of work and associated additional valuation*: N/A

*Permit applications requiring more than three (3) cycles of plan review or having been redesigned after the original submittal may incur additional hourly plan review fees. I understand that I am responsible for all plan check fees that I incur during the course of this additional plan check and that any approval plans not claimed and paid for within 3 months of notification will be disposed of and an invoice procedure for the amount due will be initiated. I further understand that an unclaimed deferral may result in delay of final approval for the subject project.

Project Contact Signature: Sarah Ellis **Date:** 09.20.2023

Please note that once this document is submitted to the City of Sacramento, your information may be subject to the Public Records Request Act. However, the City will not sell your data or information for any purpose.

OPTIMIZED ENERGY
& FACILITIES CONSULTING, INC.

City of Sacramento
Community Department
300 Richards Blvd, 3rd Floor
Sacramento, CA 92811
(916)264-5011

Attention: Jason Queener

May 23, 2023

Re: 905 North Avenue
Building Permit #: COM-2307306
Address: 905 North Avenue

All changes are clouded with revision #1 for clarity.

Electrical Comments

1. Provide a SMUD Commitment Letter.
Please see attached SMUD Substructure Plan. Because this is considered a residential project by SMUD, this is what they have issued in lieu of commitment letter and sketch.

2. All conductors shall be metered as this is private property.
Meter shown on single line.

3. Show service conductors on the single line.
Single line has been revised to note service conductors.

4. Add a note to the plans that the lights mounted on the buildings will be under separate permits and are shown for photometric purposes only.
Note added to plans.

Sincerely
Alex Batista, PE

- HVAC Design
- Plumbing Design
- Electrical Design
- Title 24 Calculations & Reports
- Energy Management & Expense Reduction

5734 Lonetree Boulevard, Rocklin, CA 95765
Office: (916) 626-5518 - www.oefcinc.com

OPTIMIZEDENERGY™
& FACILITIES CONSULTING, INC.

City of Sacramento
Community Department
300 Richards Blvd, 3rd Floor
Sacramento, CA 92811
(916)264-5011

Attention: Vincent Wang

May 17, 2023

Re: 905 North Avenue
Building Permit #: COM-2307306
Address: 905 North Avenue

All changes are clouded with revision #1 for clarity.

Electrical Comments

1. Detail 1: Detail references structural for light pole anchorage and footing specifications, which were not found. Please provide specifications with supporting structural calculations. Additionally, provide light pole specifications specific to the project on plan (e.g., light fixture weight, light pole height/size, etc.)
Fixture weight added to schedule. Attached are fixture, pole, and structural detail.

Sincerely
Alex Batista, PE

- HVAC Design
- Plumbing Design
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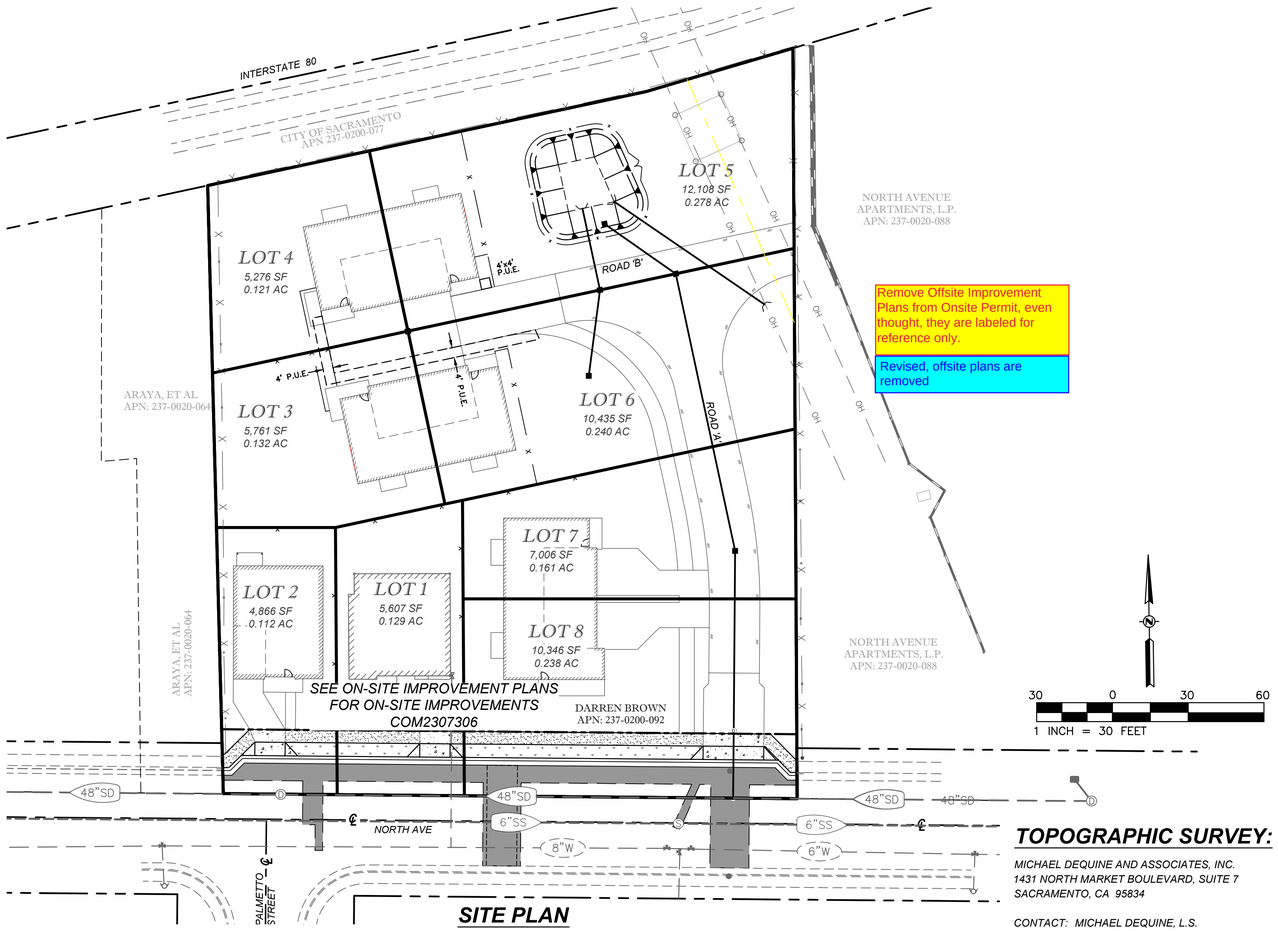
OFF-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION

CITY OF SACRAMENTO, STATE OF CALIFORNIA, 95838
APN: 237-0200-092

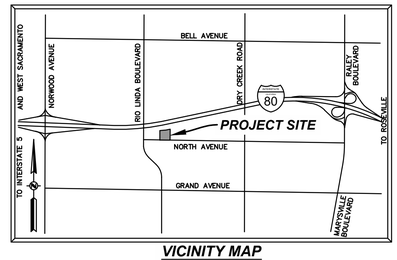
CWE responses in blue



SITE PLAN

Remove Offsite Improvement Plans from Onsite Permit, even thought, they are labeled for reference only.

Revised, offsite plans are removed



VICINITY MAP
NO SCALE

LEGEND

DESCRIPTION	EXISTING	PROPOSED
PROPERTY LINE		
ROW		
EASEMENT		
LOT LINE		
CENTERLINE		
SW, CURB & GUTTER		
DITCH / FLOWLINE		
EP		
STORM DRAIN	XX"SD	XX"SD
SANITARY SEWER	XX"SS	XX"SS
WATER	XX"W	XX"W
SDMH		
DROP INLET		
DIRECTION OF SURFACE FLOW		
OVERLAND RELEASE PATH		
SSMH		
SSCO		
FIRE HYDRANT		
WATER GATE VALVE		
WATER METER	WM	WM
BACKFLOW PREVENTER		
MONUMENT WELL		
BOLLARD		
UTILITY POLE		
STREET LIGHT		
SITE LIGHT		
FENCE	X	X
INDEX CONTOUR	25	25
INTERMEDIATE CONTOURS		
JUNCTION/PULL BOX	P	PB
SIGN		
GRADE BREAK LINE		GB
PIPE CAP		
HANDICAP RAMP		
CONTROL POINT		100 100.00 PK
FINISH FLOOR ELEVATION	FF: 123.00	FF: 123.00
SPOT ELEVATION (ASPHALT CONCRETE)	× 157.01 AC	13.34 AC
MATCH (E) GRADE ELEVATION		13.61 AC MATCH (E)
TRUNCATED DOMES		
BUILDING		
DOOR		
BUILDING AWNING		

ABBREVIATIONS:

AB	AGGREGATE BASE	INV	INVERT
AC	ASPHALT CONCRETE	LT	LEFT TURN
ARV	AIR RELEASE VALVE	LGTR	LIP OF GUTTER
BC	BEGIN CURVE	OMP	OPEN METAL PIPE
BCR	BEGIN CURB RETURN	(P)	PROPOSED
BOP	BOTTOM OF PIPE	PCC	PORTLAND CEMENT CONCRETE
BOW	BACK-OF-WALK	PG	PROFILE GRADE
BR	BOTTOM OF RAMP	PIV	POST INDICATOR VALVE
BSE	BUILDING SETBACK EASEMENT	POC	POINT OF CONNECTION
℄	CENTERLINE	PL	PROPERTY LINE
CMP	CORRUGATED METAL PIPE	PUE	PUBLIC UTILITY EASEMENT
COTG	CLEAN-OUT TO GRADE	RCP	REINFORCED CONCRETE PIPE
DI	DROP INLET	ROW	RIGHT-OF-WAY
DIP	DUCTILE IRON PIPE	RT	RIGHT TURN
DS	DOWN SPOUT	RPPA	REDUCED PRINCIPAL PRESSURE ASSEMBLY
(E)	EXISTING	SDMH	STORM DRAIN MANHOLE
EC	END CURVE	SD	STORM DRAIN
ECR	END CURB RETURN	SS	SANITARY SEWER
EP	EDGE OF PAVEMENT	SSCO	SANITARY SEWER CLEAN OUT
FES	FLARED END SECTION	SSMH	SANITARY SEWER MANHOLE
FDC	FIRE DEPARTMENT CONNECTION	SWCT	SAWCUT
FF	FINISH FLOOR	SW	SIDEWALK
FG	FINISHED GROUND	STA	STATION
FH	FIRE HYDRANT	TBC	TOP OF BACK OF CURB
FL	FLOW LINE	TBW	TOP OF BACK OF SIDEWALK
FG	FINISH GRADE	TC	TOP OF CURB
F.O.C.	FACE OF CURB	TFC	TOP OF FACE OF CURB
FS	FIRE SPRINKLER	TOP	TOP OF PIPE
GB	GRADE BREAK	TP	TOP OF PAVEMENT
GR	GRATE	TR	TOP OF RAMP
GV	GATE VALVE	TS	TOP OF SIDEWALK
GVW	GROSS VEHICLE WEIGHT	TG	TOP OF GRATE
HC	HANDICAP	W	WATER
HP	HIGH POINT	WV	WATER VALVE
IRR	IRRIGATION	WM	WATER METER
		WWF	WELDED WIRE FABRIC

RAW OFF-SITE EARTHWORK SUMMARY

CUT: 125 CY
FILL: 0 CY
NET: 125 CY EXPORT

NOTE:
EARTHWORK QUANTITIES ARE ESTIMATED TO SUBGRADE AND DO NOT TAKE INTO ACCOUNT SHRINKAGE, EXCESS MATERIALS FROM TRENCHING AND MISC. UNKNOWN STRUCTURAL SECTIONS. CONTRACTOR SHOULD VERIFY EARTHWORK QUANTITIES.

NOTICE TO CONTRACTOR - ORDER OF WORK:

PRIOR TO THE START OF ANY CIVIL WORK, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES BY POTHOLING AT ALL POINTS OF POTENTIAL CONFLICT WITH PROPOSED UTILITIES OR PROPOSED POINTS OF CONNECTION WITH EXISTING UTILITIES. IF THE ACTUAL LOCATIONS OF THE EXISTING UTILITIES FOUND IN THE FIELD ARE DIFFERENT FROM WHAT IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING IMMEDIATELY AND PROVIDE THE ACTUAL LOCATION INFORMATION. RFE ENGINEERING WILL VERIFY IF THERE ARE ANY CONFLICTS WITH THE IMPROVEMENTS AND WILL PROVIDE MODIFICATIONS TO THE DESIGN TO MITIGATE THE CONFLICTS IF ANY CONFLICTS EXIST.

NOTICE TO CONTRACTOR

THIS PROJECT HAS AN APPROVED STATE GENERAL CONSTRUCTION PERMIT AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP). WDID # 5S34C400468

CONTRACTOR IS RESPONSIBLE TO HIRE A STATE CERTIFIED QSP (QUALIFIED SWPPP PRACTITIONER) TO OVERSEE IMPLEMENTATION OF THE SWPPP PRIOR TO START OF CONSTRUCTION. ALL REQUIRED INSPECTIONS, TRAINING AND REQUIRED TESTING AND REPORTING SHALL BE OVERSEEN BY THE QSP.

THE FINAL APPROVED SWPPP SHALL BE KEPT ON THE CONSTRUCTION SITE DURING CONSTRUCTION AND MAINTAINED BY THE QSP.

CONTRACTOR SHALL SEND THE FINAL SWPPP WITH ALL INSPECTION, TESTING, AMENDMENTS, REPORTS AND OTHER DOCUMENTATION TO THE OWNER ONCE CONSTRUCTION HAS BEEN COMPLETED AND THE NOTICE OF TERMINATION SUBMITTED.

CONTRACTOR SHALL HAVE A PRECONSTRUCTION MEETING AND INCLUDE THE QSP AND CIVIL ENGINEER IN THE MEETING, EITHER ON-SITE OR VIA TELEPHONE CONFERENCE.

OFF-SITE DISTURBED AREA: 0.103 ACRES (OFF-SITE)
ON-SITE DISTURBED AREA: 1.291 ACRES (ON-SITE)
TOTAL DISTURBED AREA: 1.394 ACRES (ON AND OFF-SITE

SHEET INDEX:

PAGE	SHEET	NAME
1	C1	TITLE SHEET
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3	C2.2	GENERAL NOTES 2
4	C3	EXISTING CONDITIONS
5	C4	OFF-SITE DEMOLITION PLAN
6	C5	NORTH AVENUE PLAN AND PROFILE
7	C6	OFF-SITE UTILITY PLAN
8	C7	OFF-SITE GRADING, EROSION & SEDIMENT CONTROL PLAN
9	C8	OFF-SITE EROSION & SEDIMENT CONTROL NOTES & DETAILS
10	C9	CONSTRUCTION DETAILS
11	C10	SIGNING AND STRIPING PLAN
12	CE0	ELECTRICAL POWER OFF-SITE PLAN (BY OPTIMIZED)
13	L1	LANDSCAPE NOTES AND DETAILS (BY MSLA)
14	L2	PLANTING & IRRIGATION PLAN (BY MSLA)

BENCHMARK:

BENCHMARK 278-A2C
A HILTI NAIL IN LIGHT BASE OF SE CORNER OF DRY CREEK ROAD AND NORTH AVENUE.
ELEV: 40.402' (NAVD88)

FEMA FLOOD ZONE:

SUBJECT PROPERTY IS LOCATED WITHIN ZONE "X", WITH A REDUCED RISK OF FLOODING DUE TO LEVEE. AS DETERMINED BY THE NATIONAL FLOOD INSURANCE PROGRAM, FLOOD INSURANCE RATE MAP COMMUNITY PANEL NO.: 06067C0064 DATED: 06/16/2015

PROJECT DESCRIPTION:

THE EXISTING CURB, GUTTER AND SIDEWALK ALONG THE FRONTAGE OF 905 NORTH AVENUE WILL BE WIDENED 5.5' WITH NEW ROLLED CURB AND GUTTER WITH A DETACHED PUBLIC SIDEWALK. TWO UTILITY POLES WILL BE REQUIRED TO BE RELOCATED AS A RESULT OF THE WIDENING.

PROPERTY OWNER / DEVELOPER:

NERRADSCALI CORPORATION
3960 KINGSBARNS DRIVE
ROSEVILLE, CA 95747

CONTACT: DARREN BROWN
PH: (916) 300-7962
EMAIL: DARRENBBROWN@COMCAST.NET

ZONING:

R-2A MULTI-DWELLING UNIT ZONING

ASSESSOR'S NO.:

APN: 237-0200-092

AREA OF PARCEL:

EXISTING PARCEL 1 = 0.207 ACRES
EXISTING PARCEL 2 = 1.129 ACRES
EXISTING PARCEL 3 = 0.074 ACRES

TOPOGRAPHIC SURVEY:

MICHAEL DEQUINE AND ASSOCIATES, INC.
1431 NORTH MARKET BOULEVARD, SUITE 7
SACRAMENTO, CA 95834

CONTACT: MICHAEL DEQUINE, L.S.
PH: (916) 285-0519
EMAIL MDEQUINE@MDEQUINE.COM
LICENSE NUMBER: LS 5614

JURISDICTION:

CITY OF SACRAMENTO

USE:

EXISTING: RESIDENTIAL AND VACANT LAND
PROPOSED: MULTI-FAMILY DWELLING

Know what's below.
Call before you dig.
or (800) 227-2600

UTILITY REPRESENTATIVES

UTILITY	COMPANY	CONTACT	PHONE
GAS	PG&E	DONNY KENNEDY	530-889-5089
ELECTRIC	S.M.U.D.	BLANDON GRANGER	916-732-5016
TELEPHONE	AT&T	ASTRID WILLARD	916-453-6136
DRAINAGE, WATER, SEWER	CITY OF SACRAMENTO	JESUS REYES	916-808-1721
U.S.A.	UNDERGROUND SERVICE ALERT		800-227-2600
FIRE	CITY OF SACRAMENTO	KING TUNSON	916-808-1358

SUBMITTED BY:

ROBERT F. EYNCK, PE C040666 — DATE

ACCEPTED BY:

CHAD COPEMAN, PE C76393 — DATE
SENIOR ENGINEER, DEVELOPMENT ENGINEERING

UTILITIES DEPARTMENT — DATE

REVISIONS NO.	DESCRIPTION	DATE	BY

BENCH MARK ELEV. 40.402' (NAVD88)
DESCRIPTION
278-A2C
A HILTI NAIL IN LIGHT BASE OF SE CORNER OF DRY CREEK ROAD AND NORTH AVENUE.

FIELD BOOK
SCALE
HORIZ. 1"=30'
VERT.

CITY OF SACRAMENTO
DEPARTMENT OF PUBLIC WORKS

DRAWN BY: DCJ — DESIGNED BY: M. WILSON — CHECKED BY: R. EYNCK
DATE 03/31/2023 — R.C.E. C 92447 — R.C.E. C040666 DATE 6/12/23

2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 | www.cwecorp.com

REGISTERED PROFESSIONAL ENGINEER ROBERT F. EYNCK No. C040666 Exp. 3-31-25 CIVIL STATE OF CALIFORNIA

OFF-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION
SACRAMENTO, CA 95838
APN: 237-0200-092

TITLE SHEET

RPC23-0011 | P19-036 | P15657300 | PL-2023021

SHEET C1 — OF 14

RFE PROJECT NO. 21-188 – 905 NORTH AVENUE, SACRAMENTO, CA 95838

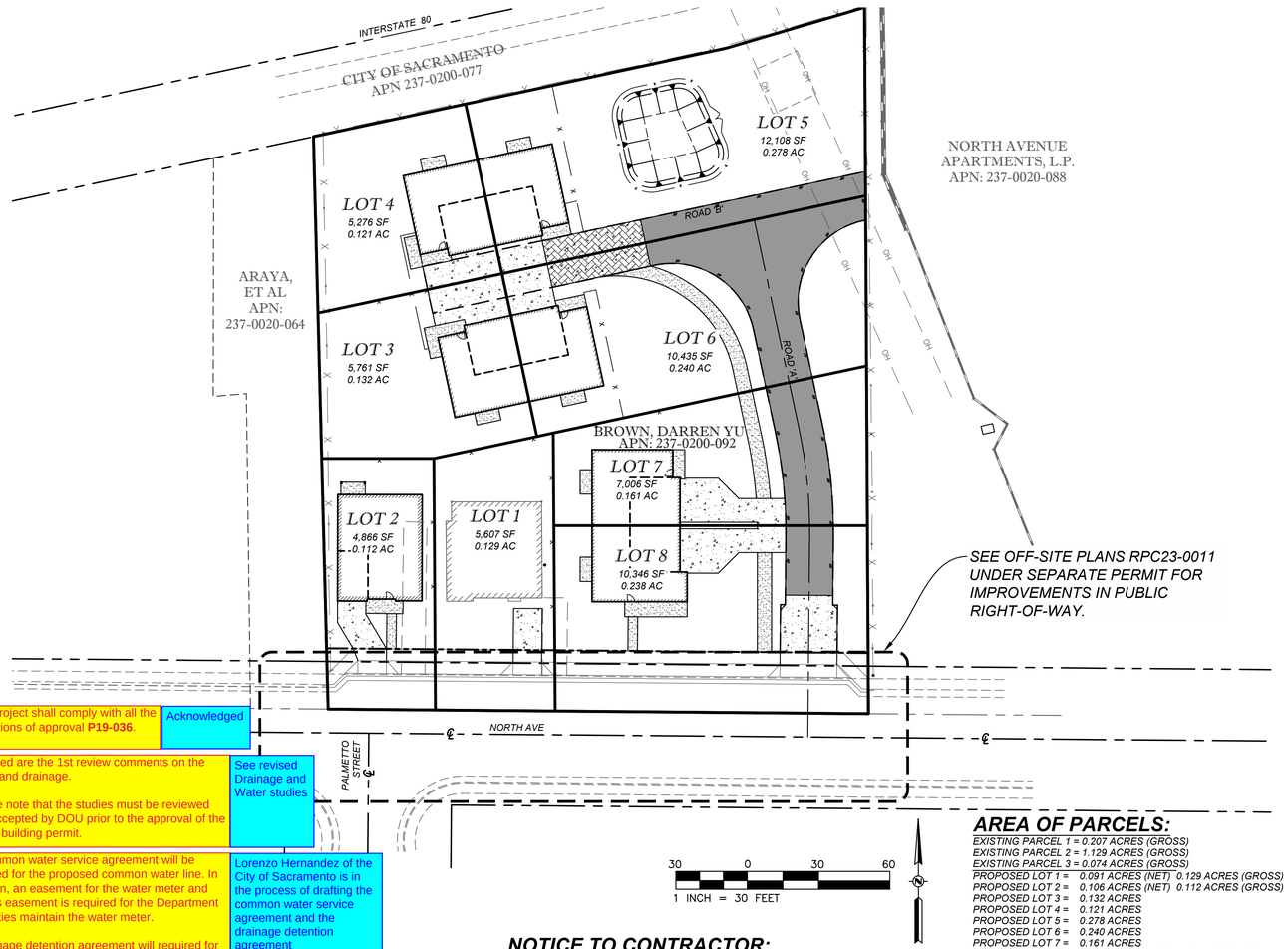
W:\2021 Projects\21-188 905 North Ave Soc\Working CAD\C1 OFFSITE TITLE.dwg Jun 12, 2023-10:22 am

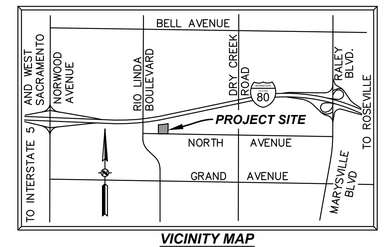
FOR REFERENCE ONLY

ON-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION
CITY OF SACRAMENTO, STATE OF CALIFORNIA, 95838
APN: 237-0200-092
BUILDING PERMIT NO. COM2307306

LEGEND

DESCRIPTION	EXISTING	PROPOSED
PROPERTY LINE		
ROW		
EASEMENT		
LOT LINE		
CENTERLINE		
SW, CURB & GUTTER		
DITCH / FLOWLINE		
EP		
STORM DRAIN	XX"SD	XX"SD
SANITARY SEWER	XX"SS	XX"SS
WATER LINE	XX"W	XX"W
SDMH	Ⓢ	Ⓓ
DRAINAGE INLET	■	■
DIRECTION OF SURFACE FLOW		
OVERLAND RELEASE PATH		
SSMH	Ⓢ	
SSCO	○	●
FIRE HYDRANT		
WATER VALVE	⋈	⋈
WATER METER	WM	WM
BACKFLOW PREVENTION ASSEMBLY		
REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY	RP	RP
BLOW OFF ASSEMBLY		
PIPE CAP	[	[
UTILITY POLE		
UTILITY POLE WITH LIGHT		
STREET LIGHT		
SITE LIGHT		
JUNCTION/PULL BOX	PB	PB
MONUMENT WELL		
BOLLARD		
SIGN		
FENCE	X X X	X X X
MAJOR CONTOUR	25	25
MINOR CONTOUR		
GRADE BREAK LINE		GB
TREE & DRIP		REMOVAL
CONTROL POINT		100 100.00 PK
FINISH FLOOR ELEVATION	FF: 123.00	FF: 123.00
SPOT ELEVATION (ASPHALT CONCRETE)	× 157.01 AC	13.34 AC
MATCH (E) GRADE ELEVATION		13.61 AC MATCH (E)
TRUNCATED DOMES		
BUILDING		





VICINITY MAP
NO SCALE

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8	C6.2	GRADING AND DRAINAGE DETAILS
9	C7	UTILITY PLAN
10	C8	EROSION AND SEDIMENT CONTROL PLAN
11	C9	EROSION & SEDIMENT CONTROL NOTES & DETAILS
12	C10.1	CONSTRUCTION DETAILS 1
13	C10.2	CONSTRUCTION DETAILS 2
14	C10.3	CONSTRUCTION DETAILS 3

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SACRAMENTO, CA 95834

CONTACT: MICHAEL DEQUINE, L.S.
PH: (916) 285-0519
EMAIL MDEQUINE@MDEQUINE.COM
LICENSE NUMBER: LS 5614

ASSESSOR'S PARCEL NO.:

APN: 237-0200-092

JURISDICTION:

CITY OF SACRAMENTO

USE:

EXISTING: RESIDENTIAL AND VACANT LAND
PROPOSED: MULTI-FAMILY DWELLING

ZONING:

R-2A MULTI-DWELLING UNIT ZONING

BENCHMARK:

BENCHMARK 278-A2C
A HILTI NAIL IN LIGHT BASE OF SE CORNER OF DRY CREEK ROAD AND NORTH AVENUE.
ELEV: 40.402' (NAVD88)

AREA OF PARCELS:

EXISTING PARCEL 1 = 0.207 ACRES (GROSS)
EXISTING PARCEL 2 = 1.129 ACRES (GROSS)
EXISTING PARCEL 3 = 0.074 ACRES (GROSS)
PROPOSED LOT 1 = 0.091 ACRES (NET) 0.129 ACRES (GROSS)
PROPOSED LOT 2 = 0.106 ACRES (NET) 0.112 ACRES (GROSS)
PROPOSED LOT 3 = 0.132 ACRES
PROPOSED LOT 4 = 0.121 ACRES
PROPOSED LOT 5 = 0.278 ACRES
PROPOSED LOT 6 = 0.240 ACRES
PROPOSED LOT 7 = 0.161 ACRES
PROPOSED LOT 8 = 0.177 ACRES (NET) 0.238 ACRES (GROSS)

GEOTECHNICAL STUDY:

BY: ALLERION CONSULTING GROUP
REPORT NO: 05-22016G DATED:03-23-2022

PROJECT DESCRIPTION:

THE EXISTING 3 LOTS WITH ONE-SINGLE FAMILY RESIDENCE IS BEING DIVIDED INTO 8 LOTS WITH A SINGLE FAMILY HOME ON EACH PARCEL.THE EXISTING SINGLE FAMILY HOME IS TO REMAIN. UTILITIES AND ACCESS ARE PROVIDED THROUGH A PRIVATE ACCESS DRIVEWAY AND P.U.E. STORMWATER IS CAPTURED ON-SITE VIA ATTENUATED DETENTION BASIN.

UNDERGROUND UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

UTILITY REPRESENTATIVES

UTILITY	COMPANY	CONTACT	PHONE
GAS	P.G.& E.	LARRY SCHLAHT	916-561-6711
ELECTRIC	S.M.U.D.	GENE HOPPES	916-732-5789
TELEPHONE	AT&T	PAUL CLARK	916-453-7016
WATER	CITY OF SACRAMENTO	LORENZO HERNANDEZ	916-808-4939
SEWER	CITY OF SACRAMENTO	LORENZO HERNANDEZ	916-808-4939
DRAINAGE	CITY OF SACRAMENTO	LORENZO HERNANDEZ	916-808-4939
U.S.A.	- -	- -	800-227-2600
FIRE	CITY OF SACRAMENTO	MARTY HILL	916-808-1625
CATV	COMCAST	MARK DUBY	916-648-8310

CODE INFORMATION:

1. APPLICABLE CODES:
   - 2022 CALIFORNIA BUILDING CODE (CBC)
   - 2022 CALIFORNIA MECHANICAL CODE (CMC)
   - 2022 CALIFORNIA PLUMBING CODE (CPC)
   - 2022 CALIFORNIA ELECTRICAL CODE (CEC)
   - 2022 CALIFORNIA ENERGY CODE (CEC T-24)
   - 2022 CALIFORNIA FIRE CODE (CFC)
   - 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSC)

ABBREVIATIONS:

AB	AGGREGATE BASE	LT	LEFT TURN
AC	ASPHALT CONCRETE	OCEW	ON CENTER EACH WA
ARV	AIR RELEASE VALVE	OMP	OPEN METAL PIPE
BC	BEGIN CURVE	(P)	PROPOSED
BCR	BEGIN CURB RETURN	PCC	PORTLAND CEMENT
BOW	BACK-OF-WALK	PG	PROFILE GRADE
BR	BOTTOM OF RAMP	PIV	POST INDICATOR VALV
CH	CHORD	POC	POINT OF CONNECTION
C	CENTERLINE	PL	PROPERTY LINE
CMP	CORRUGATED METAL PIPE	PUE	PUBLIC UTILITY EASEMENT
COTG	CLEAN-OUT TO GRADE	RCP	REINFORCED CONCRETE PIPE
DI	DROP INLET	ROW	RIGHT-OF-WAY
DIP	DUCTILE IRON PIPE	RT	RIGHT TURN
DS	DOWN SPOUT	RPPA	REDUCED PRESSURE PRINCIPLE ASSEMBLY
DW	DOMESTIC WATER	RSP	ROCK SLOPE PROTECTION
(E)	EXISTING	SASD	SACRAMENTO AREA SEWER DISTRICT
EC	END CURVE	SDMH	STORM DRAIN MANHOLE
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HC	HANDICAP	WV	WATER VALVE
HP	HIGH POINT	WM	WATER METER
IRR	IRRIGATION	WWF	WELDED WIRE FABRIC
INV	INVERT		

The project shall comply with all the conditions of approval **P19-036**. — Acknowledged

Attached are the 1st review comments on the water and drainage.
Please note that the studies must be reviewed and accepted by DOU prior to the approval of the onsite building permit. — See revised Drainage and Water studies

A common water service agreement will be required for the proposed common water line. In addition, an easement for the water meter and access easement is required for the Department of Utilities maintain the water meter.
A drainage detention agreement will required for the proposed detention pond. — Lorenzo Hernandez of the City of Sacramento is in the process of drafting the common water service agreement and the drainage detention agreement

Prior to the initiation for any water, sewer or storm drainage services to the project, a homeowner association (HOA) or a privately funded maintenance district shall be formed and C.C. & R.s shall be approved by the City and recorded assuring maintenance of water, sewer and storm drainage facilities within the private property.
Provide a copy C.C&R.s — See Attachment 1: Declaration of CC&R's

SUBJECT PROPERTY IS LOCATED WITHIN ZONE "X", WITH A REDUCED ... MINED BY THE ... URANCE RATE ... 2015

... SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES BY POTHOLING AT ALL POINTS OF POTENTIAL CONFLICT WITH PROPOSED UTILITIES OR PROPOSED POINTS OF CONNECTION WITH EXISTING UTILITIES. IF THE ACTUAL LOCATIONS OF THE EXISTING UTILITIES FOUND IN THE FIELD ARE DIFFERENT FROM WHAT IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING IMMEDIATELY AND PROVIDE THE ACTUAL LOCATION INFORMATION. RFE ENGINEERING WILL VERIFY IF THERE ARE ANY CONFLICTS WITH THE IMPROVEMENTS AND WILL PROVIDE MODIFICATIONS TO THE DESIGN TO MITIGATE THE CONFLICTS IF ANY CONFLICTS EXIST. IN ADDITION, CONTRACTOR SHALL VERIFY ALL CONFORM ELEVATIONS FOR ANY DEVIATIONS FROM PLANS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL CONTACT RFE ENGINEERING IMMEDIATELY AND PROVIDE ALL DEVIATION GRADE INFORMATION.

NOTE:
ALL CONSTRUCTION WITHIN PUBLIC RIGHT OF WAY AND WITHIN ANY P.U.E. SHALL REQUIRE AN ENCROACHMENT PERMIT FROM THE CITY OF SACRAMENTO.

NEW DRIVEWAYS WILL REQUIRE A SEPARATE DRIVEWAY PERMIT FROM THE CITY OF SACRAMENTO DEPARTMENT OF PUBLIC WORKS.

NOTICE TO CONTRACTOR:

THIS PROJECT HAS AN APPROVED STATE GENERAL CONSTRUCTION PERMIT AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP). WDID # 5S34C400468 CONTRACTOR IS RESPONSIBLE TO HIRE A STATE CERTIFIED QSP (QUALIFIED SWPPP PRACTITIONER) TO OVERSEE IMPLEMENTATION OF THE SWPPP PRIOR TO START OF CONSTRUCTION. ALL REQUIRED INSPECTIONS, TRAINING AND REQUIRED TESTING AND REPORTING SHALL BE OVERSEEN BY THE QSP.

THE FINAL APPROVED SWPPP SHALL BE KEPT ON THE CONSTRUCTION SITE DURING CONSTRUCTION AND MAINTAINED BY THE QSP. CONTRACTOR SHALL SEND THE FINAL SWPPP WITH ALL INSPECTION, TESTING, AMENDMENTS, REPORTS AND OTHER DOCUMENTATION TO THE OWNER ONCE CONSTRUCTION HAS BEEN COMPLETED AND THE NOTICE OF TERMINATION SUBMITTED.

CONTRACTOR SHALL HAVE A PRECONSTRUCTION MEETING AND INCLUDE THE QSP AND CIVIL ENGINEER IN THE MEETING, EITHER ON-SITE OR VIA TELEPHONE CONFERENCE.

TOTAL DISTURBED AREA: 1.291 ACRES (ON-SITE)
TOTAL INCREASE IN IMPERVIOUS AREA: 0.438± ACRES

RAW EARTHWORK SUMMARY

CUT: 2,100 CY
FILL: 90 CY
NET: 2,010 CY EXPORT
NOTE:
EARTHWORK QUANTITIES ARE ESTIMATED TO SUBGRADE AND DO NOT TAKE INTO ACCOUNT SHRINKAGE, EXCESS MATERIALS FROM TRENCHING AND MISC. UNKNOWN STRUCTURAL SECTIONS. CONTRACTOR SHOULD VERIFY EARTHWORK QUANTITIES.

811
Know what's **below.**
Call before you dig.
or (800) 227-2600

UNAUTHORIZED CHANGES AND USES:

THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THESE PLANS MUST BE APPROVED BY THE PREPARER OF THESE PLANS.

SUBMITTED BY:
SHAWN B. SOMERS, P.E. C80625 — 6/14/2023 DATE

REVISION	NO.	DATE	BY	APPR'D

BY	CHECK
DESIGN MJW	RFE
DRAWN DCJ	RFE
QUANT.	

ORIGINAL SCALE IS IN INCHES 0 1 2

REGISTERED PROFESSIONAL ENGINEER SHAWN B. SOMERS No. C 80625 Exp. 3-31-25 6/14/2023 CIVIL STATE OF CALIFORNIA

RFE ENGINEERING
2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7600 | www.rfeinccorp.com

PROPERTY OWNER / DEVELOPER
NERRADSCALI CORPORATION
3960 KINGSBARNS DRIVE
ROSEVILLE, CA 95747
CONTACT: DARREN BROWN
PH: (916) 300-7962
EMAIL: DARRENBBROWN@COMCAST.NET

ON-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION
SACRAMENTO, CA 95838
APN: 237-0200-092

TITLE SHEET

Sheet
C1
1 of 14
6/12/2023

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PROJECT GENERAL NOTES:

1. THE EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN ON THESE PLANS IS FROM A TOPOGRAPHIC SURVEY PLAN AND SUPPLEMENTAL SURVEY PREPARED BY RFE ENGINEERING AND REFERENCED ON SHEET C1. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS, ESPECIALLY POINTS OF CONNECTION TO EXISTING FACILITIES FOR ALL IMPROVEMENTS PRIOR TO CONSTRUCTION OF APPLICABLE FACILITIES. CONTRACTOR SHALL NOTIFY RFE ENGINEERING, INC. IMMEDIATELY OF ANY DISCREPANCIES OR CONFLICTS DISCOVERED.

2. THE CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXEMPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF ENGINEER.

3. EXCAVATIONS SHALL BE ADEQUATELY SHORED, BRACED AND SHEETED SO THAT THE EARTH WILL NOT SLIDE OR SETTLE AND SO THAT ALL EXISTING IMPROVEMENTS OF ANY KIND WILL BE FULLY PROTECTED FROM DAMAGE. ANY DAMAGE RESULTING FROM A LACK OF ADEQUATE SHORING, BRACING AND SHEETING, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND HE SHALL AFFECT NECESSARY REPAIRS OR RECONSTRUCTION AT HIS OWN EXPENSE. WHERE THE EXCAVATION FOR A CONDUIT TRENCH, AND/OR STRUCTURE IS FIVE FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL PROVIDE ADEQUATE SHEETING, SHORING AND BRACING OR EQUIVALENT METHOD, FOR THE PROTECTION OF LIFE, OR LIMB, WHICH SHALL CONFORM TO THE APPLICABLE CONSTRUCTION SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY OF THE STATE OF CALIFORNIA. THE CONTRACTOR SHALL ALWAYS COMPLY WITH OSHA REQUIREMENTS.

4. OWNER WILL OBTAIN THE GENERAL BUILDING PERMIT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY ADDITIONAL PERMITS NECESSARY TO PERFORM THE WORK SHOWN ON THESE PLANS FROM THE APPROPRIATE AGENCIES.

5. THE CONTRACTOR SHALL TAKE EFFECTIVE ACTION TO PREVENT THE FORMATION OF AN AIRBORNE DUST NUISANCE AND SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM HIS FAILURE TO DO SO.

6. THE CONTRACTOR SHALL PROVIDE FOR INGRESS AND EGRESS FOR PRIVATE PROPERTY ADJACENT TO WORK THROUGHOUT THE PERIOD OF CONSTRUCTION. TRAFFIC MOVEMENT SHALL BE MAINTAINED AT ALL TIMES. IF TRAFFIC CONTROL PROCEDURES ARE DEEMED NECESSARY, THE CONTRACTOR SHALL CONFORM TO THE "WATCH HANDBOOK" AND CALTRANS TRAFFIC MANUAL. CITY/COUNTY ENGINEERS APPROVAL IS REQUIRED PRIOR TO ANY DETOURING, DISRUPTION, OR INTERRUPTION OF THE NORMAL TRAFFIC FLOW.

7. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF ALL VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO THE NORMAL WORKING HOURS.

8. THE CONTRACTOR SHALL POST EMERGENCY TELEPHONE NUMBERS FOR POLICE, FIRE, AMBULANCE, AND THOSE AGENCIES RESPONSIBLE FOR MAINTENANCE OF UTILITIES IN THE VICINITY OF THE JOBSITE.

9. ANY EXTRA CONSTRUCTION STAKING NECESSITATED SOLELY BY THE CONTRACTOR'S NEGLIGENCE WILL BE CHARGED TO THE CONTRACTOR ON A TIME AND MATERIAL BASIS, AND PAID FOR BY THE CONTRACTOR.

10. STATIONING HEREON IS ALONG STREET CENTERLINE UNLESS OTHERWISE SHOWN OR INDICATED.

11. ALL RETURN RADII AND CURB DATA ARE TO BOTTOM FACE OF CURB.

12. ALL QUANTITIES AND PAY ITEMS ARE AND WILL BE BASED ON HORIZONTAL MEASUREMENTS.

13. LENGTHS OF SANITARY SEWERS AND STORM DRAINS ARE HORIZONTAL DISTANCES FROM CENTER TO CENTER OF STRUCTURES, ROUNDED OFF TO THE NEAREST FOOT.

14. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED ON FACILITIES IDENTIFIED BY THE TOPOGRAPHIC SURVEY AND UPON RECORD INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF DESIGN AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 2 WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. **CALL UNDERGROUND SERVICE ALERT (U.S.A.), AT 800-227-2600.** IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED IN THE CONTRACT UNIT PRICE.

15. ALL EXISTING UTILITIES AND IMPROVEMENTS THAT BECOME DAMAGED DURING CONSTRUCTION SHALL BE COMPLETELY RESTORED TO THE SATISFACTION OF THE APPLICABLE AGENCY ENGINEER, AT THE CONTRACTOR'S SOLE EXPENSE.

16. ANY RELOCATION OF PUBLIC UTILITIES SHALL BE CONDUCTED IN ACCORDANCE WITH ANY AND ALL REQUIREMENTS OF THE UTILITY COMPANY INCLUDING FEES, BONDS, PERMITS AND WORKING CONDITIONS, ETC. THIS WORK SHALL BE DONE AT NO EXPENSE TO THE UTILITY COMPANY. THE OWNER SHALL PAY THE COST OF ALL SUCH RELOCATION WORK INCLUDING FEES, BONDS, PERMITS, ETC.

17. IF ARCHAEOLOGICAL MATERIALS ARE UNCOVERED DURING GRADING, TRENCHING OR OTHER EXCAVATION, EARTHWORK WITHIN 100 FEET OF THESE MATERIALS SHALL BE STOPPED UNTIL A PROFESSIONAL ARCHAEOLOGIST WHO IS CERTIFIED BY THE SOCIETY OF CALIFORNIA ARCHAEOLOGY (SCA) AND/OR THE SOCIETY OF PROFESSIONAL ARCHAEOLOGY (SOPA) HAS HAD AN OPPORTUNITY TO EVALUATE THE SIGNIFICANCE OF THE FIND AND SUGGEST APPROPRIATE MITIGATION MEASURES, IF THEY ARE DEEMED NECESSARY.

18. RFE ENGINEERING, INC. DOES NOT SPECIFY NOR RECOMMEND THE USE OR INSTALLATION OF ANY MATERIAL OR EQUIPMENT WHICH IS MADE FROM, OR WHICH CONTAINS ASBESTOS FOR USE IN THE CONSTRUCTION OF THESE IMPROVEMENTS. ANY PARTY INSTALLING OR USING SUCH MATERIAL OR EQUIPMENT SHALL BE SOLELY RESPONSIBLE FOR ALL INJURIES, DAMAGE OR LIABILITIES, OF ANY KIND, CAUSED BY THE USE OF SUCH MATERIALS OR EQUIPMENT, THE PROVISIONS OF THIS NOTE SHALL APPLY UNLESS THEY ARE EXPRESSLY WAIVED IN WRITING BY OWNER AND RFE ENGINEERING, INC.

PROJECT GENERAL NOTES (CONT):

19. SHOULD IT APPEAR THAT THE WORK TO BE DONE OR ANY MATTER RELATIVE THERETO IS NOT SUFFICIENTLY DETAILED OR EXPLAINED ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING, INC., AT (916) 772-7800 FOR SUCH FURTHER EXPLANATIONS AS MAY BE NECESSARY.

20. CONTRACTOR SHALL PROVIDE PROTECTIVE FENCING AROUND EXISTING TREES TO REMAIN. SEE OTHER NOTES ON THESE PLANS, PROJECT CONDITIONS OF APPROVAL, AND SPECIFIC JURISDICTIONAL REQUIREMENTS FOR SUCH FENCING.

21. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT AND ALL ADDENDA REFERENCED ON SHEET C1.

22. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL REGULATIONS, LAWS AND ORDINANCES, INCLUDING ALLOWABLE CONSTRUCTION HOURS, CONSTRUCTION NOISE NEAR RESIDENCES, DUST CONTROL AND EROSION CONTROL.

23. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL CONTRACT DOCUMENTS INCLUDING ALL PLANS AND SPECIFICATIONS PREPARED BY OTHER DISCIPLINES FOR THIS PROJECT PRIOR TO THE START OF CONSTRUCTION. SUCH REVIEW SHALL BE CONTINUOUS THROUGHOUT THE CONSTRUCTION PROCESS. ANYTIME THAT A CONFLICT BETWEEN SUCH PLANS AND SPECIFICATIONS IS IDENTIFIED, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING, INC. AND OTHER APPLICABLE DISCIPLINES TO REQUEST A VERIFICATION OF THE DESIGN REQUIREMENTS AND A RESOLUTION TO SUCH CONFLICTS PRIOR TO CONSTRUCTION OF SUCH FACILITIES.

24. BEFORE EXECUTION OF ANY WORK, THE CONTRACTOR SHALL EXAMINE ACTUAL JOB CONDITIONS AND REPORT TO RFE ENGINEERING, INC. AND OWNER ANY ERROR, OMISSION, OR DISCREPANCY AFFECTING WORK. UPON COMMENCING CONSTRUCTION THE CONTRACT SHALL BE RESPONSIBLE FOR REPORTING ANY AND ALL CONFLICTS, ERRORS, OMISSIONS, ETC. TO RFE ENGINEERING, INC. IMMEDIATELY UPON DISCOVERY. IF SO DIRECTED BY THE ENGINEER OR CITY/COUNTY ENGINEER, THE CONTRACTOR SHALL STOP WORK UNTIL MITIGATION CAN BE MADE. ANY COST INCURRED RESULTING FROM THE CONTRACTOR'S FAILURE TO STOP WORK AS DIRECTED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

25. THE CONTRACTOR SHALL PROVIDE THE CIVIL ENGINEER "AS BUILT" DRAWINGS AT PROJECT COMPLETION. THE CONTRACTOR SHALL PROVIDE ONE COMPLETE ACCURATE SET OF RECORD CHANGES. THE CHANGES SHALL BE PLACED ON A CLEAN SET OF PROJECT DRAWINGS IN RED, AND GIVEN TO THE ENGINEER AT JOB COMPLETION.

26. THE ENGINEERS ESTIMATE OF QUANTITIES IS FOR DESIGN REFERENCE ONLY. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE QUANTITIES FOR BID AND FIELD INSTALLATION. ALL CALCULATED EARTHWORK QUANTITIES FURNISHED FOR THIS PROJECT ARE APPROXIMATE. THE QUANTITIES HEREIN WERE CALCULATED TO FINISHED ROUGH GRADE AND EXISTING GROUND. THE ACTUAL MATERIALS MOVED ARE VARIABLE DEPENDENT UPON THE CONTRACTOR'S METHOD OF OPERATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE FOR ANY EXCESS OR SHORTAGE OF EARTH MATERIAL FOR THIS PROJECT AND NO ADDITIONAL PAYMENT WILL BE MADE.

27. THESE DRAWINGS ARE FOR THIS SPECIFIC PROJECT AND NO OTHER USE IS AUTHORIZED. RFE ENGINEERING, INC. DISCLAIMS ALL RESPONSIBILITY FOR CONSTRUCTION BEYOND WHAT IS SPECIFICALLY DESIGNED OR DETAILED HEREIN.

28. THE CONTRACTOR SHALL TAKE CARE TO PROTECT THE EXISTING SITE AND ADJACENT IMPROVEMENTS FROM DAMAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE RESULTING FROM THE CONSTRUCTION AND SHALL REPAIR OR MAKE REPLACEMENT TO CURRENT CITY/COUNTY STANDARDS. ALL SUCH WORK SHALL BE AT THE CONTRACTOR'S OWN EXPENSE. THE CONTRACTOR SHALL PERFORM THESE REPAIRS AND REMOVE ALL TRASH AND CONSTRUCTION DEBRIS AS DIRECTED BY RFE ENGINEERING, INC. OR THE CITY/COUNTY ENGINEER.

29. THE AGENCY, CITY/COUNTY ENGINEER, OWNER OR RFE ENGINEERING, INC. MAY REQUIRE THE CONTRACTOR TO UNCOVER ANY IMPROVEMENTS THAT HAVE BEEN COMPLETED WITHOUT PROPER INSPECTION AND/OR APPROVAL. IF THE INSTALLATION IS FOUND NOT TO MEET APPLICABLE STANDARDS OR PREVIOUSLY APPROVED ALTERNATIVES SHOWN ON THE PLANS, THE CONTRACTOR MAY BE REQUIRED TO REMOVE AND REPLACE SUCH IMPROVEMENTS AT HIS OWN EXPENSE.

30. THE CONTRACTOR IS RESPONSIBLE FOR PRESERVATION AND PROTECTION OF EXISTING SURVEY AND PROPERTY CORNER MONUMENTS THAT EXIST AT THE TIME OF CONSTRUCTION IN THE AREA WHERE CONSTRUCTION ACTIVITIES OCCUR. MONUMENTS DISTURBED, OR LOST, DUE TO CONSTRUCTION ACTIVITIES WILL REQUIRE THAT THE CONTRACTOR HAVE THEM REPLACED, IN KIND, BY A LICENSED CALIFORNIA LAND SURVEYOR, WHO WILL BE REQUIRED TO FILE WITH THE COUNTY EITHER A CORNER RECORD OR A RECORD OF SURVEY, WHICHEVER WILL MEET THE REQUIREMENTS OF THE LAND SURVEYOR'S ACT, SECTION 8771(B).

GENERAL PAVING NOTES:

1. CONSTRUCTION OF ALL PAVING SHALL BE CONSISTENT WITH REQUIREMENTS OUTLINED IN THE PROJECT GEOTECHNICAL ENGINEERING REPORT AND ALL ADDENDA.

2. PROPER PREPARATION OF THE SUBGRADE IS ESSENTIAL FOR OPTIMUM LONG-TERM PERFORMANCE OF THE CONCRETE PAVING. WHEN SUBGRADE IS SHAPED, LARGE EMBEDDED OBJECTS SHALL BE REMOVED AND THE TOP 12-INCHES OF SOIL SHALL BE THOROUGHLY MOISTURE CONDITIONED TO THE OPTIMUM MOISTURE CONTENT AND UNIFORMLY COMPACTED TO 95% RELATIVE COMPACTION. THE UPPER 6-INCHES OF SOIL SHALL BE THOROUGHLY MOISTURE CONDITIONED TO THE OPTIMUM MOISTURE CONTENT AND UNIFORMLY COMPACTED TO 95% RELATIVE COMPACTION FOR ALL STRUCTURAL SECTIONS SPECIFIED ON THESE PLANS. ALL UNSUITABLE SOIL SHALL BE REMOVED AND REPLACED WITH AN ACCEPTABLE ENGINEERED FILL.

3. CLASS 2 AGGREGATE BASE SHALL BE UNIFORM IN DEPTH AND COMPACTED TO 95% RELATIVE COMPACTION.

4. ACCEPTABLE TOLERANCES FOR FINE GRADING OF THE SUBGRADE AND AGGREGATE BASE ARE NO MORE THAN ¼-INCH ABOVE OR ½-INCH BELOW THE DESIGN GRADE.

5. PORTLAND CEMENT CONCRETE (PCC):
   - MINIMUM COMPRESSIVE STRENGTH: 4,000 PSI IN 28 DAYS
   - SLUMP: 3" TO 4"
   - AIR ENTRAINMENT: 5% TO 6%
   - AGGREGATE: MAXIMUM ¾ - INCH CRUSHED (ROUGH-TEXTURED, ANGULAR-SHAPED)
   - ADMIXTURES CONTAINING CHLORIDES AND SULFIDES ARE NOT ACCEPTABLE.

6. REINFORCING STEEL, IF SPECIFIED ON THE PLANS, SHALL BE CHAIRED AND LOCATED MID-SLAB DEPTH. REINFORCEMENT AND SPACING SHALL BE AS SPECIFIED ON THE PAVING PLAN. DEFORMED REINFORCEMENT SHALL BE GRADE 60 STEEL.

GENERAL PAVING NOTES CONT.:

7. HEAVY DUTY TRAFFIC RATED PCC SLABS SHALL BE CONSTRUCTED WITH THICKENED EDGES, AT LEAST TWICE THE SPECIFIED SLAB THICKNESS AND TAPERED 4-FEET WIDE MEASURED HORIZONTALLY FROM THE PERIMETER OF THE SLAB. SEE DETAILS.

8. FORMS SHALL BE STRAIGHT, FREE FROM WARPING, AND STRONG ENOUGH TO RESIST THE LATERAL PRESSURE OF THE CONCRETE. A FORM RELEASE AGENT SHALL BE APPLIED TO EASE STRIPPING.

9. CONCRETE SHALL BE PLACED CONTINUOUSLY AS CLOSE AS POSSIBLE TO ITS FINAL POSITION AND BE CONSOLIDATED.

10. IMMEDIATELY FOLLOWING STRIKE-OFF, THE SURFACE SHALL BE LEVELED WITH A BULLFLOAT OR A SCRAPING STRAIGHTEDGE. THE SURFACE SHALL NOT BE FINISHED MORE THAN NECESSARY TO REMOVE IRREGULARITIES. ALL EDGES, TOOLED JOINTS, AND ISOLATION JOINTS SHALL BE ROUNDED TO THE SPECIFIED RADIUS WITH APPROPRIATE TOOLS. THE USE OF HAND OR POWER FLOATS AND TROWELS IS NOT NECESSARY AND IS NOT RECOMMENDED.

11. AS SOON AS THE FINISHED CONCRETE HAS SET SUFFICIENTLY TO MAINTAIN A TEXTURE AND NO BLEED WATER REMAINS ON THE SURFACE, THE SURFACE CAN BE DRAGGED WITH A SHORT LENGTH OF DAMP BURLAP OR OTHER MATERIAL SUCH AS SYNTHETIC TURF CARPETING. AS AN ALTERNATIVE, THE SURFACE CAN BE BROOMED TO DEVELOP A SKID-RESISTANCE SURFACE AND UNIFORM APPEARANCE. SEE ARCHITECTURAL PLANS FOR ADDITIONAL SPECIAL CONCRETE FINISH REQUIREMENTS AND JOINT PATTERN REQUIREMENTS. UNLESS OTHERWISE SPECIFIED ON THE ARCHITECT'S PLANS, ALL CONCRETE SHALL HAVE A LIGHT BROOM FINISH.

12. THE CONCRETE SHALL BE PROTECTED FROM DAMAGE DURING THE CURING PROCESS.

13. CURING:
   - COLD TEMPERATURES - CONCRETE SHALL BE PROTECTED FROM FREEZING FOR AT LEAST 5-DAYS AFTER PLACEMENT. FOR FORECAST TEMPERATURES AROUND 32 TO 25 DEGREES FAHRENHEIT THE CONCRETE SHALL BE COVERED WITH POLYETHYLENE SHEETING. FOR COLDER TEMPERATURES, TWO SHEETS OF POLYETHYLENE SEPARATED BY 12-INCHES OF STRAW OR A SIMILAR DEGREE OF INSULATION.
   - WARM TEMPERATURES - WET CURING OR LIQUID MEMBRANE-FORMING CURING COMPOUND SHALL BE INITIATED IMMEDIATELY AFTER FINISHING IN SUNNY, WINDY, AND WARM CONDITIONS.
   - CONTRACTOR SHALL HAVE ENOUGH PLASTIC SHEETING AVAILABLE ON THE PROJECT SITE TO COMPLETELY COVER ANY SURFACES THAT MAY BE DAMAGED IN THE EVENT OF RAIN. THERE SHALL ALSO BE ADEQUATE WEIGHTS AVAILABLE TO KEEP THE PLASTIC SHEETING FROM BLOWING AWAY. FOR CONCRETE ON A SLOPE, DIVERSION SHALL BE PROVIDED FOR POTENTIAL RUN-ON TO PROTECT FROM WATER ABOVE WASHING ACROSS THE SURFACE.

14. CONCRETE JOINTS:

ISOLATION / EXPANSION JOINTS:

CONSTRUCT WHERE PCC MEETS FIXED FOUNDATIONS SUCH AS COLUMNS, BUILDING, MACHINERY FOUNDATIONS, WALLS, MANHOLES, DRAIN INLETS, UTILITY BOXES, ETC. ALL STRUCTURAL TUBING, PIPING, ETC. THAT EXTENDS UP THROUGH THE PCC SLAB SHALL BE WRAPPED WITH TWO LAYERS OF BUILDING PAPER OR ISOLATION JOINT MATERIAL TO BREAK BOND WITH PCC SLAB.

EXPANSION JOINT MATERIAL = ½ - INCH FELT EXPANSION FIBER BOARD, OR APPROVED EQUIVALENT.
FULL DEPTH OF PCC
WIDTH = ⅜ - INCH
RADIUS = ¼ - INCH

EXPANSION JOINT TO BE GREENSTREAK PAVING CAP SEAL OR APPROVED SEALANT IF SPECIFIED ON THE PLAN.

CONTRACTION CONTROL JOINTS HAND TOOLED OR SAWCUT

JOINT IS A SAW CUT, TROWEL CUT OR PLASTIC OR HARDBOARD PREFORMED STRIP MINIMUM OF ONE QUARTER THE DEPTH OF THE SLAB THICKNESS, MINIMUM 1 - INCH. THIS JOINT PROVIDES A WEAK PLANE IN THE SLAB WHERE CRACKING CAN OCCUR. MAXIMUM SPACING FOR ¾ - INCH MAXIMUM AGGREGATE IS 2 x SLAB THICKNESS (DEPTH) IN FEET (I.E. A 4-INCH SLAB WITH ¾" MAXIMUM AGGREGATE SHALL HAVE A MAXIMUM SPACING OF 8-FEET). MAXIMUM SPACING FOR AGGREGATE GREATER THAN ¾ - INCH SHALL BE 2.5 x SLAB THICKNESS IN FEET (I.E. A 4-INCH SLAB WITH AGGREGATE GREATER THAN ¾" SHALL HAVE A MAXIMUM SPACING OF 10-FEET). IN NO CASE SHALL SPACING BE GREATER THAN 15 - FEET.

SLAB THICKNESS (INCHES)	JOINT DEPTH (INCHES)	JOINT TROWEL RADIUS (INCHES)	MAXIMUM JOINT SPACING (FEET) (EACH DIRECTION)
4	1	⅜	8
5	1¼	⅜	10
6	1½	⅜	12
6½	1⅝	⅜	13
7	1¾	⅜	14
8	2	⅜	15

TOOLING OR EARLY-ENTRY DRY-CUT SAW JOINTS ARE DESIRED TO PLACE JOINTS BEFORE DEVELOPMENT OF TENSILE STRESSES THAT ARE GREAT ENOUGH TO INITIATE CRACKING, THUS INCREASING THE PROBABILITY OF CRACKS FORMING AT THE JOINT. CONTRACTION JOINT PATTERNS SHOULD DIVIDE PAVEMENTS INTO APPROXIMATELY SQUARES. THE LENGTH OF A PANEL SHOULD NOT BE MORE THAN 25% GREATER THAN ITS WIDTH.

CONSTRUCTION JOINTS

CONSTRUCTION JOINTS ARE STOPPING PLACES IN THE PROCESS OF CONSTRUCTION

BUTT TYPE CONSTRUCTION JOINT WITH DOWEL
SMOOTH STEEL DOWEL BAR COATED TO PREVENT BOND
MINIMUM 1-FOOT LONG - 6-INCHES IN EACH SIDE OF JOINT
EDGE EACH SIDE WITH 1/8-INCH RADIUS.

DOWELS SHALL BE PLACED A MINIMUM OF 12-INCHES AWAY FROM ANY JOINT INTERSECTION.

PREVENT BOND OF CONCRETE AT JOINT OR EXTEND REBAR 1' MINIMUM BEYOND INITIAL SECTION TO TIE IN SECONDARY SECTION.

GENERAL PAVING NOTES CONT.:

CONT'D
ALL NEW PCC PAVING SHALL BE TIED INTO EXISTING WITH 1/2-INCH STEEL DOWEL @ 12-INCHES O.C. EPOXY INTO EXISTING. DOWELS SHALL NOT BE WITHIN 12-INCHES OF EDGE OF CONCRETE OR JOINT INTERSECTION. EDGE NEW PCC WITH 1/8-INCH RADIUS AT JOINT.

SCORE JOINTS - HAND TROWELED FOR AESTHETICS ONLY. SEE ARCHITECTURE PLAN FOR PATTERN IF NOT SPECIFIED ON CIVIL PLANS - FIT ALL OTHER CONTRACTION AND CONSTRUCTION JOINTS INTO THIS PATTERN

15. ALL ISOLATION / EXPANSION JOINTS SHALL BE CAPPED WITH GREENSTREAK G-SEAL PAVING CAP SEAL PROFILE #610 OR #628 AS APPROPRIATE FOR USE.

16. ALL CONTRACTION CONTROL AND CONSTRUCTION JOINTS SHALL BE SEALED WITH SIKAFLEX SELF-LEVELING SEALANT (COLOR TO MATCH CONCRETE) OR APPROVED EQUIVALENT. JOINT WALLS AND ALL SURFACES TO WHICH THE SEALING MATERIAL IS TO ADHERE SHALL BE SURFACE DRY FOR AT LEAST THREE HOURS PRIOR TO SEALING. THE SURFACE OF THE SEALING COMPOUND SHALL BE A MAXIMUM OF 1/8-INCH BELOW THE LEVEL OF THE PCC SLAB SURFACE.

17. CONTRACTOR SHALL TAKE PRECAUTIONS TO REDUCE RAPID LOSS OF MOISTURE FROM THE CONCRETE AND REDUCE PLASTIC SHRINKAGE CRACKING, PRIOR TO PLACEMENT, DURING PLACEMENT AND UP TO 5-DAYS AFTER PLACEMENT AND FINISHING OF THE CONCRETE.

18. SEE ARCHITECTURAL PLANS FOR ADDITIONAL SPECIAL CONCRETE FINISH REQUIREMENTS AND JOINT PATTERN REQUIREMENTS. UNLESS OTHERWISE SPECIFIED ON THE ARCHITECT'S PLANS, ALL CONCRETE SHALL HAVE A LIGHT BROOM FINISH.

ASPHALT PAVING

(REFERENCE CALTRANS STANDARD SPECIFICATIONS SECTION 39)

1. ALL ASPHALT SHALL MEET CALTRANS TYPE A HMA SPECIFICATIONS.

2. FOR ASPHALT PAVEMENT THICKNESSES PLACED IN ONE SINGLE LIFT, THE GRADATION REQUIREMENTS SHALL BE AS FOLLOWS:

TYPE A HMA PAVEMENT THICKNESS	GRADATION
0.10 FEET	½ INCH
GREATER THAN 0.10 TO LESS THAN 0.20 FEET	½ INCH
0.20 TO LESS THAN 0.25 FEET	¾ INCH
0.25 FEET OR GREATER	¾ INCH OR 1 INCH

23. FOR PAVEMENT THICKNESS IN EXCESS OF 0.30 FEET, PAVEMENT SHALL BE PLACED IN MULTIPLE LIFTS NOT LESS THAN 0.15 FEET. WHEN PLACING ASPHALT IN LIFTS, THE TABLE BELOW IS APPLICABLE:

TYPE A HMA LIFT THICKNESS	GRADATION
0.15 TO LESS THAN 0.20 FEET	½ INCH
0.20 FEET TO LESS THAN 0.25 FEET	¾ INCH
0.25 FEET OR GREATER	¾ INCH OR 1 INCH

24. APPLY A TACK COAT BEFORE PLACING A SUBSEQUENT LIFT.

DUST MITIGATION NOTES:

1. ENCLOSE, COVER OR WATER ALL SOIL PILES TWICE DAILY.
2. WATER EXPOSED SOIL WITH ADEQUATE FREQUENCY TO KEEP SOIL MOIST AT ALL TIMES.
3. WATER ALL HAUL ROADS TWICE DAILY.
4. MAINTAIN AT LEAST TWO (2) FEET OF FREEBOARD ON TRUCKS WHEN HAULING LOADS.
5. MAINTAIN CONSTRUCTION EQUIPMENT (STATIONARY AND MOBILE) IN OPTIMUM RUNNING CONDITION.

CONSTRUCTION MATERIALS AND GRADING NOTES:

1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH FHA STANDARDS.
2. CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CITY OF SACRAMENTO STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL OBTAIN AND USE ALL APPLICABLE ADDENDUMS.
3. ALL SLOPE BANKS ARE 2:1 MAXIMUM UNLESS OTHERWISE NOTED.
4. ALL APPLICABLE FEES TO BE PAID AND PERMITS REQUIRED SHALL BE OBTAINED BY THE CONTRACTOR BEFORE COMMENCEMENT OF CONSTRUCTION.
5. MAXIMUM TOLERANCE FROM PAD ELEVATIONS SHALL BE +/- 0.2 FEET.
6. ANY GRADING OPERATIONS OUTSIDE OF SUBDIVISION BOUNDARY SHALL REQUIRE A RIGHT-OF-ENTRY.
7. ALL GRADING SHALL BE IN CONFORMANCE WITH THE CITY OF SACRAMENTO GRADING, EROSION, AND SEDIMENT CONTROL ORDINANCE (ORD. NO. 93-068).
8. GRADING, TRENCHING, CUTTING AND/OR FILLING WITHIN THE DRIP LINE OF THOSE TREES, DESIGNATED ON THE SITE PLAN FOR PRESERVATION, SHALL NOT OCCUR. NO ACTIONS SHALL BE TAKEN THAT WILL HARM THE HEALTH, VITALITY OR LONGEVITY OF THOSE TREES IDENTIFIED ON THE SITE PLAN FOR PRESERVATION.
9. THE CONTRACTOR IS HEREBY NOTIFIED THAT PRIOR TO COMMENCING CONSTRUCTION, HE IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND REQUESTING A VERIFICATION AT THE CONSTRUCTION SITE OF THE LOCATIONS OF THEIR UNDERGROUND UTILITIES WHERE SUCH FACILITIES MAY POSSIBLY CONFLICT WITH THE PLACEMENT OF IMPROVEMENTS AS SHOWN ON THESE IMPROVEMENT PLANS. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS PROJECT WILL BE REQUIRED TO NOTIFY MEMBERS OF UNDERGROUND SERVICE ALERT 48 HOURS IN ADVANCE OF PERFORMING WORK, BY CALLING THE TOLL FREE NUMBER 1-800-642-2444. EXCAVATIONS FOR THE PURPOSE OF THESE REQUIREMENTS, SHALL BE DEFINED AS BEING 18" (INCHES) OR MORE IN DEPTH.
10. WORKMANSHIP SHALL CONFORM TO THE CITY OF SACRAMENTO STANDARD SPECIFICATIONS DATED: JUNE, 2007. THE CONTRACTOR SHALL OBTAIN AND USE ALL APPLICABLE ADDENDUMS.
11. ALL GRADING SHALL COMPLY WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT, SEE SHEET C1.
12. ALL SLOPE BANKS ARE 2:1 MAXIMUM UNLESS OTHERWISE NOTED.
13. MAXIMUM TOLERANCE FROM PAD ELEVATIONS SHALL BE +/- 0.2'.
14. ANY GRADING OPERATIONS OUTSIDE OF PROJECT BOUNDARY SHALL REQUIRE A RIGHT-OF-ENTRY.
15. ALL GRADING SHALL BE IN CONFORMANCE WITH THE CITY OF SACRAMENTO GRADING, EROSION, AND SEDIMENT CONTROL ORDINANCE (ORD. NO. 93-068).

NO.	REVISION	DATE	BY	APPR'D

BY: DESIGN MJW; DRAWN RFE; QUANT. DCJ; CHECK RFE

ORIGINAL SCALE IS IN INCHES (0, 1, 2)

REGISTERED PROFESSIONAL ENGINEER — SHAWN B. SOMERS — No. C 80625 — Exp. 3-31-25 — 6/14/2023 — CIVIL — STATE OF CALIFORNIA

RFE ENGINEERING, INC.
2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 | www.rfeinc.com

PROPERTY OWNER / DEVELOPER
NERRADSCALI CORPORATION
3960 KINGSBARNS DRIVE
ROSEVILLE, CA 95747
CONTACT: DARREN BROWN
PH: (916) 300-7952
EMAIL: DARRENBBROWN@COMCAST.NET

ON-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION
SACRAMENTO, CA 95838
APN: 237-0200-092

GENERAL NOTES 1

Sheet
C2.1

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6/12/2023

CITY OF SACRAMENTO GENERAL NOTES:

1. ALL CONSTRUCTION MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE CITY OF SACRAMENTO STANDARD SPECIFICATIONS, DATED NOVEMBER 2020. THE CONTRACTOR SHALL OBTAIN AND USE ALL APPLICABLE ADDENDUMS.

2. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL EXISTING UTILITIES AND FOR THE PROTECTION OF AND REPAIR OF DAMAGE TO THEM. CONTACT UNDERGROUND SERVICE ALERT 1-800-642-2444, 48 HOURS BEFORE WORK IS TO BEGIN.

3. FOR ALL TRENCH EXCAVATIONS 5 FEET OR MORE IN DEPTH, THE CONTRACTOR SHALL OBTAIN A PERMIT FROM THE DIVISION OF INDUSTRIAL SAFETY (2422 ARDEN WAY, SUITE 165, SACRAMENTO, PHONE 263-2800) PRIOR TO BEGINNING ANY EXCAVATION. A COPY OF THIS PERMIT SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND FURNISH, INSTALL, AND MAINTAIN TEMPORARY SIGNS, BRIDGES, BARRICADES, FLAGMEN, AND OTHER FACILITIES TO ADEQUATELY SAFEGUARD THE GENERAL PUBLIC AND WORK, AND TO PROVIDE FOR THE PROPER ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC. CONSTRUCTION OPERATIONS SHALL COMPLY WITH THE WORK AREA TRAFFIC CONTROL HANDBOOK (WATCH).

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SURVEY MONUMENTS OR MARKERS DURING CONSTRUCTION.

6. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING DRAINAGE AND SEWER FACILITIES WITHIN THE CONSTRUCTION AREA UNTIL NEW DRAINAGE AND SEWER IMPROVEMENTS ARE IN PLACE AND FUNCTIONING.

7. IF UNUSUAL AMOUNTS OF BONE, STONE OR ARTIFACTS ARE UNCOVERED, WORK WITHIN 50 METERS OF THE AREA SHALL CEASE IMMEDIATELY AND A QUALIFIED ARCHEOLOGIST AND A REPRESENTATIVE OF THE NATIVE AMERICAN HERITAGE COMMISSION SHALL BE CONSULTED TO DEVELOP, IF NECESSARY, MITIGATION MEASURES TO REDUCE ANY ARCHAEOLOGICAL IMPACT TO A LESS THAN SIGNIFICANT EFFECT BEFORE CONSTRUCTION RESUMES IN THE AREA.

8. COST TO REMOVE AND REPLACE EXISTING PAVEMENT OVER THE WATER, STORM AND SANITARY LINE TRENCHES SHALL BE INCLUDED IN THE PRICE BID FOR PIPE IN PLACE. REPLACEMENT SHALL BE 4" AC AND 12" AB, MINIMUM, OR INDICATED ON THE PLANS.

9. PIPE AND MANHOLE DIMENSIONS ARE TO THE CENTERLINE, UNLESS OTHERWISE NOTED.

10. ALL TAPS 24 INCHES AND SMALLER INTO SEWER & DRAIN MANHOLES SHALL BE CORE BORED WITH KOR-N-SEAL TAPS OR APPROVED EQUAL.11. ANY WATER ENTERING THE SANITARY SEWER SYSTEM TO BE CONSTRUCTED UNDER THESE PLANS SHALL NOT BE DISCHARGED TO THE EXISTING SYSTEM. PLUGS MUST BE INSTALLED IN EXISTING MANHOLES AS NECESSARY TO PERMIT PUMPING THE NEW SYSTEM CLEAR OF WATER AND DEBRIS PRIOR TO ACCEPTANCE. CARE SHALL BE EXERCISED IN LOCATING PLUGS TO AVOID INTERRUPTING SERVICES TO EXISTING CONNECTIONS. MORTAR OR BRICK PLUGS MUST BE USED, INFLATABLE DEVICES ARE NOT SATISFACTORY.

12. DRAIN PIPE MATERIAL SHALL BE REINFORCED CONCRETE PIPE C-76 CL III, NON-REINFORCED CONCRETE PIPE C-14 CL III, PVC SDR 35, OR AS SPECIFIED ON PLANS. IN ALL CASES, JOINTS FOR CONCRETE PIPE SHALL BE RUBBER GASKETED JOINTS.

13. DRAIN INLET LEADS SHALL BE PVC C-900 CL 150, RCP C-76 CL III, OR NON-REINFORCED CONCRETE C-14 CL III.

14. SANITARY SEWER PIPE MAINS SHALL BE CONSTRUCTED OF V.C.P., A.B.S. OR P.V.C. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

15. AGGREGATE SUBBASE SHALL CONFORM TO CALTRANS SPECIFICATIONS DATED: JULY, 1992 A.S.B., SECTION 25.

16. A STORMWATER PERMIT MUST BE OBTAINED WHEN CONSTRUCTION ACTIVITY RESULTS IN SOIL DISTURBANCE OF ONE (1) OR MORE ACRES. THE STATE WATER RESOURCES CONTROL BOARD, DIVISION OF WATER QUALITY, STORMWATER PERMIT, P.O. BOX 1977, SACRAMENTO, CA 95812-1977, SHALL BE CONTACTED TO OBTAIN THE PERMIT PRIOR TO BEGINNING CONSTRUCTION.

17. IF WORK SHOWN ON THESE PLANS HAS NOT COMMENCED WITHIN TWO YEARS FROM THE DATE OF THE CITY'S ACCEPTANCE OF THE PLANS, A SUBSEQUENT PLAN REVIEW AT THE CITY'S DISCRETION AND THE DEVELOPERS'S EXPENSE MAY BE NECESSARY.

18. THE CONTRACTOR SHALL COMPLY WITH THE CITY OF SACRAMENTO ADMINISTRATIVE AND TECHNICAL MANUAL FOR GRADING/EROSION AND SEDIMENT CONTROL. CONTRACTOR SHALL HAVE ALL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES IN PLACE FOR THE WINTER MONTHS PRIOR TO OCTOBER 1AND MUST ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE ONSET OF ANY STORM.

CITY OF SACRAMENTO WATER NOTES:

REVISED 03/25/2021

1. ALL CONSTRUCTION AND MATERIAL ASSOCIATED WITH THIS PLAN SHALL BE IN ACCORDANCE WITH THE CITY OF SACRAMENTO STANDARD SPECIFICATIONS, DATED NOVEMBER 2020 AND ALL APPLICABLE ADDENDA AND STANDARD DRAWINGS.

2. CONTRACTOR SHALL CALL 808-6810 FOR A PUBLIC WORKS CONSTRUCTION INSPECTOR A MINIMUM OF 48 HRS PRIOR TO BEGINNING OF WORK WITHIN THE RIGHT-OF-WAY.

3. THE CITY OF SACRAMENTO STANDARD DRAWINGS HAVE BEEN MODIFIED. THE CONTRACTOR SHALL BE IN POSSESSION OF CURRENT STANDARD WATER DRAWINGS (W). COPIES OF THESE DRAWINGS CAN BE DOWNLOADED FROM HTTP://WWW.CITYOFSACRAMENTO.ORG/UTILITIES/RESOURCES.

4. THE CONTRACTOR SHALL PAY ALL FEES FOR TAPS, TIE-IN CONNECTIONS, AND METER INSTALLATION IN ADVANCE AT THE COMMUNITY DEVELOPMENT DEPARTMENT OFFICE AT 300 RICHARDS BLVD., THIRD FLOOR PUBLIC COUNTER. FEES ARE SUBJECT TO CHANGE EVERY JULY 1ST OR AT ANY TIME. FOR CURRENT FEES VISIT HTTPS://WWW.CITYOFSACRAMENTO.ORG/ONLINE-SERVICES/FEECHARGESEARCH. THE PUBLIC COUNTER IS CURRENTLY CLOSED DUE TO COVID-19, FOR PAYMENT OF METER AND/OR TAP FEES ONLINE OR MAIL CONTACT A UTILITIES REPRESENTATIVE AT DOUDEVELOPMENTREVIEW@CITYOFSACRAMENTO.ORG OR 916-808-7890 FOR PAYMENT INSTRUCTION.

5. AT THE TIME OF FEE PAYMENT THE CONTRACTOR SHALL PROVIDE A COPY OF ALL APPROVED PLAN SHEETS SHOWING DEPARTMENT OF UTILITIES APPROVAL STAMPS.

6. THE DEPARTMENT OF UTILITIES WILL NOT INSTALL TAPS OR METERS UNLESS (A) ALL FEES HAVE BEEN PAID AND (B) PRIVATE ON-SITE PIPING HAS SUCCESSFULLY PASSED THE PLUMBING INSPECTIONS.

7. METERS WILL BE INSTALLED BY THE CITY AFTER PAYMENT OF FEES. CALL 808-4027 FOR METER ARRANGEMENT.

8. CONTRACTOR SHALL FURNISH, INSTALL AND TEST APPROVED R.P ASSEMBLIES, AND DOUBLE CHECK VALVES PER APPLICABLE W DRAWINGS

9. THE CONTRACTOR SHALL SCHEDULE ALL WATER TAPS, METER INSTALLATIONS AND SHUT DOWNS WITH THE PUBLIC WORKS INSPECTOR. CALL 808-6810 AT LEAST 14 DAYS ADVANCE FOR SCHEDULING A TAP OR METER INSTALLATION.

10. WITHOUT EXCEPTION, CONTRACTOR SHALL NOT OPEN/CLOSE ANY VALVES ON EXISTING CITY WATER MAINS.

11. ALL WATER SERVICE CONNECTIONS HAVE BEEN SET UP AS:
    - FULL SERVICE TAP- CITY WILL EXCAVATE TRENCH, INSTALL TAP, GATE VALVE AND SERVICE CONNECTION FROM MAIN LINE TO THE POINT OF SERVICE. THE CITY WILL ALSO BACKFILL THE TRENCH AND RESTORE THE SURFACE/PAVEMENT. IF THE FULL SERVICE IS FOR THE INSTALLATION OF A PUBLIC FIRE HYDRANT, THE FIRE HYDRANT ASSEMBLY IS INCLUDED.
    - EASEMENT TAP (4" AND LARGER SERVICE) - THE CONTRACTOR SHALL PROVIDE EXCAVATION AND EXPOSE THE MAIN LINE FOR THE CITY CREW TO INSTALL A TAP AND A GATE VALVE ONLY. CONTRACTOR IS REQUIRED TO INSTALL SERVICE CONNECTION FROM THE GATE VALVE TO THE POINT OF SERVICE AND ALL NECESSARY APPURTENANCES. THE CONTRACTOR ALSO IS REQUIRED TO BACKFILL THE TRENCH AND RESTORE THE SURFACE /PAVEMENT.
    - EASEMENT TAP (2" AND SMALLER SERVICE) - THE CONTRACTOR SHALL PROVIDE EXCAVATION AND EXPOSE THE MAIN LINE FOR THE CITY CREW TO INSTALL A TAP, A CORPORATION STOP AND A SERVICE CONNECTION. CONTRACTOR SHALL BACKFILL THE TRENCH AND RESTORE THE SURFACE/PAVEMENT.

12. IF CONSTRUCTION WATER IS NEEDED, THE CONTRACTOR MAY REQUEST FOR A TEMPORARY PUBLIC FIRE HYDRANT USE PERMIT. CALL 808-5454.

CITY OF SACRAMENTO EROSION AND SEDIMENT CONTROL NOTES:

1. THE CONTRACTOR SHALL FOLLOW THE GUIDELINES FOR THE CITY OF SACRAMENTO'S "ADMINISTRATIVE AND TECHNICAL PROCEDURES MANUAL FOR GRADING AND EROSION AND SEDIMENT CONTROL" FOR THE MEASURES SHOWN OR STATED ON THESE PLANS.

2. CONTRACTOR MUST ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE ONSET OF ANY STORM. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE FOR THE WINTER MONTHS PRIOR TO OCTOBER 1.

3. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED. CHANGES TO THIS EROSION AND SEDIMENT CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF A REPRESENTATIVE OF THE DEPARTMENT OF UTILITIES.

4. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. VARIATIONS MAY BE MADE TO THE PLAN IN THE FIELD SUBJECT TO THE APPROVAL OF OR AT THE DIRECTION OF A REPRESENTATIVE OF THE DEPARTMENT OF UTILITIES.

5. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BEFORE AND AFTER ALL STORMS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.

6. CONTRACTOR SHALL MAINTAIN A LOG AT THE SITE OF ALL INSPECTIONS OR MAINTENANCE OF BMPS, AS WELL AS, ANY CORRECTIVE CHANGES TO THE BMPS OR EROSION AND SEDIMENT CONTROL PLAN.

7. IN AREAS WHERE SOIL IS EXPOSED, PROMPT REPLANTING WITH NATIVE COMPATIBLE, DROUGHT-RESISTANT VEGETATION SHALL BE PERFORMED. NO AREAS WILL BE LEFT EXPOSED OVER THE WINTER SEASON.

8. THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO COMMENCEMENT OF GRADING. LOCATION OF THE ENTRANCE MAY BE ADJUSTED BY THE CONTRACTOR TO FACILITATE GRADING OPERATIONS. ALL CONSTRUCTION TRAFFIC ENTERING THE PAVED ROAD MUST CROSS THE STABILIZED CONSTRUCTION ENTRANCE. THE STABILIZED CONSTRUCTION ENTRANCE SHALL REMAIN IN PLACE UNTIL THE ROAD BASE ROCK COURSE IS COMPLETED.

9. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR AS NECESSARY.

   CONTRACTOR SHALL PLACE _______________ AROUND ALL NEW DRAINAGE STRUCTURE OPENINGS IMMEDIATELY AFTER THE STRUCTURE OPENING IS CONSTRUCTED. THESE _______________ SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.

10. CONTRACTOR SHALL IMPLEMENT HOUSEKEEPING PRACTICES AS FOLLOWS:

    A. SOLID WASTE MANAGEMENT:

    PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR REMOVAL AND DISPOSAL. CLEAR SITE OF TRASH INCLUDING ORGANIC DEBRIS, PACKAGING MATERIALS, SCRAP OR SURPLUS BUILDING MATERIALS AND DOMESTIC WASTE DAILY.

    B. MATERIAL DELIVERY AND STORAGE:

    PROVIDE A DESIGNATED MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. STORE MATERIAL ON PALLETS AND PROVIDE COVERING FOR SOLUBLE MATERIALS. RELOCATE STORAGE AREA INTO BUILDING SHELL WHEN POSSIBLE. INSPECT AREA WEEKLY.

    C. CONCRETE WASTE:

    PROVIDE A DESIGNATED AREA FOR A TEMPORARY PIT TO BE USED FOR CONCRETE TRUCK WASH-OUT. DISPOSE OF HARDENED CONCRETE OFFSITE. AT NO TIME SHALL A CONCRETE TRUCK DUMP ITS WASTE AND CLEAN ITS TRUCK INTO THE CITY STORM DRAINS VIA CURB AND GUTTER. INSPECT DAILY TO CONTROL RUNOFF, AND WEEKLY FOR REMOVAL OF HARDENED CONCRETE.

    D. PAINT AND PAINTING SUPPLIES:

    PROVIDE INSTRUCTION TO EMPLOYEES AND SUBCONTRACTORS REGARDING REDUCTION OF POLLUTANTS INCLUDING MATERIAL STORAGE, USE, AND CLEAN UP. INSPECT SITE WEEKLY FOR EVIDENCE OF IMPROPER DISPOSAL.

    E. VEHICLE FUELING, MAINTENANCE AND CLEANING:

    PROVIDE A DESIGNATED FUELING AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. DO NOT ALLOW MOBILE FUELING OF EQUIPMENT. PROVIDE EQUIPMENT WITH DRIP PANS. RESTRICT ONSITE MAINTENANCE AND CLEANING OF EQUIPMENT TO A MINIMUM. INSPECT AREA WEEKLY.

    F. HAZARDOUS WASTE MANAGEMENT:

    PREVENT THE DISCHARGE OF POLLUTANTS FROM HAZARDOUS WASTES TO THE DRAINAGE SYSTEM THROUGH PROPER MATERIAL USE, WASTE DISPOSAL AND TRAINING OF EMPLOYEES. HAZARDOUS WASTE PRODUCTS COMMONLY FOUND ON-SITE INCLUDE BUT ARE NOT LIMITED TO PAINTS & SOLVENTS, PETROLEUM PRODUCTS, FERTILIZERS, HERBICIDES & PESTICIDES, SOIL STABILIZATION PRODUCTS, ASPHALT PRODUCTS AND CONCRETE CURING PRODUCTS.

TREE PRESERVATION MEASURES FOR PROTECTED TREES

1. TREE PROTECTION ZONE (TPZ) - THE AREA AROUND A TREE WITHIN THE OUTERMOST CIRCUMFERENCE OF THE CANOPY OR AS SET FORTH IN A TREE PROTECTION PLAN.

2. TREES TO BE PRESERVED WITHIN OR ADJACENT TO THE CONSTRUCTION AREA SHALL BE PROTECTED FROM DISTURBANCE PRIOR TO AND THROUGHOUT CONSTRUCTION BY THE FOLLOWING METHODS OR AS APPROVED BY THE CITY ARBORIST:
   a. PLACING CHAIN LINK FENCING AT THE EDGE OF THE TPZ. MINIMUM FENCING HEIGHT IS 60 INCHES.
   b. WHEN THE FULL TPZ CANNOT BE ENCLOSED BY CHAIN LINK FENCING, THE APPLICANT SHALL PROVIDE PROTECTION FOR THE TRUNK AND THE SOIL WITHIN THE ROOT ZONE AS APPROVED BY THE CITY ARBORIST. ACCEPTED PRACTICES MAY BE TO WRAP FOAM AROUND THE TRUNK AND SECURING 2X4S VERTICALLY AROUND ALL SIDES IN ADDITION TO 4-6" OF WOOD CHIP MULCH, ¾ INCH PLYWOOD OR TRENCH PLATES ON THE GROUND WITHIN THE TPZ.

3. PROTECTION MEASURES SHALL REMAIN IN PLACE THROUGHOUT THE DURATION OF THE PROJECT, INCLUDING LANDSCAPE INSTALLATION.

4. ANY NECESSARY TREE PRUNING, INCLUDING PRUNING FOR CLEARANCE FOR EQUIPMENT OR FOR STRUCTURES SHALL BE SUPERVISED OR PERFORMED BY THE PROJECT ARBORIST WHO SHALL BE AN INTERNATIONAL SOCIETY OF ARBORICULTURE CERTIFIED ARBORIST OR AN ASCA REGISTERED CONSULTING ARBORIST. IF THE PRUNING WILL OCCUR ON A CITY STREET TREE OR A PRIVATE PROTECTED TREE, A SEPARATE TREE PERMIT FROM URBAN FORESTRY WILL BE REQUIRED.

5. EXCAVATION, GRADING OR TRENCHING WITHIN THE TPZ TREE SHALL EMPLOY ONE OF THE FOLLOWING METHODS: HYDRO-EXCAVATION, PNEUMATIC EXCAVATION OR HAND DIGGING.

6. GRADING OPERATIONS, INCLUDING CUTS, FILLS, TRENCHING OR OTHER EXCAVATIONS ARE NOT ALLOWED UNLESS SEPARATELY PERMITTED BY URBAN FORESTRY AND SUPERVISED BY THE PROJECT ARBORIST.

7. WHERE GRADING IS NECESSARY WITHIN THE TREE PROTECTION ZONE AND PERMITTED, THE WORK SHALL BE DONE UNDER THE SUPERVISION OF THE PROJECT ARBORIST WITH PRIOR APPROVAL BY THE CITY ARBORIST. IN SOME CASES, BORING OR DRILLING MAY BE REQUIRED. WHERE GRADING IS APPROVED, THE NATURAL TOPOGRAPHY SHALL REMAIN AS UNDISTURBED AS POSSIBLE.

8. STORAGE OF ANY MATERIALS, PARKING VEHICLES OR EQUIPMENT, FUELING AND OTHER ACTIONS DETRIMENTAL TO THE CONDITION OF THE TREE ARE NOT ALLOWED WITHIN THE TPZ.

9. ALL STREET TREES SHALL BE WATERED REGULARLY THROUGHOUT THE CONSTRUCTION PROCESS PER PROJECT ARBORIST'S RECOMMENDATIONS.

10. ALL WORK WITHIN THE DRIPLINE OF A CITY TREE OR A PRIVATE PROTECTED TREE SHALL BE SEPARATELY PERMITTED AND SUPERVISED BY AN ISA CERTIFIED ARBORIST WHO SHALL MAKE RECOMMENDATIONS TO MINIMIZE THE IMPACT OF APPROVED WORK ON THE TREES.

11. THE CONTRACTOR SHALL BE FINANCIALLY RESPONSIBLE FOR ANY DAMAGE TO THE CITY TREES ASSOCIATED WITH THE PROJECT. ACCIDENTAL OR NEGLIGENT ACTIONS THAT DAMAGE CITY TREES MAY RESULT IN A PENALTY. THE MONETARY VALUE OF ANY SUCH DAMAGES WILL BE APPRAISED BY THE CITY URBAN FORESTER OR HIS AUTHORIZED REPRESENTATIVE AND SHALL BE EXPRESSED AS THE MONETARY EQUIVALENT OF ALL LABOR AND MATERIALS REQUIRED TO BRING THE TREE IN QUESTION TO A STATE OF COMPARABLE UTILITY WITH REGARDS TO ITS CONDITION AND FUNCTION PRIOR TO THE BEGINNING OF THE PROJECT.

CITY OF SACRAMENTO GRADING NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS AND THE LATEST EDITION OF THE CITY OF SACRAMENTO STANDARD SPECIFICATIONS NOVEMBER 2020, WHICH IS AT CITY WEB-SITE: HTTP://WWW.CITYOFSACRAMENTO.ORG/UTILITIES/RESOURCES/SPECS-AND-DRAWINGS

2. THE CONTRACTOR SHALL OBTAIN AND USE ALL APPLICABLE ADDENDUMS.

3. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH FHA STANDARDS.

4. ALL GRADING SHALL BE IN CONFORMANCE WITH THE CITY OF SACRAMENTO GRADING, EROSION AND SEDIMENT CONTROL ORDINANCE (ORD. NO. 93-068).

5. ALL GRADING SHALL COMPLY WITH THE RECOMMENDATIONS OF THE SOIL AND GEOLOGICAL INVESTIGATION PREPARED BY: ____________________.

6. ALL APPLICABLE FEES TO BE PAID AND PERMITS REQUIRED SHALL BE OBTAINED BY THE CONTRACTOR BEFORE COMMENCEMENT OF CONSTRUCTION.

7. ALL SLOPE BANKS ARE 2:1 MAXIMUM UNLESS OTHERWISE NOTED.

8. MAXIMUM TOLERANCE FROM PAD ELEVATIONS SHALL BE +/- 0.2 FEET.

9. THE CONTRACTOR IS HERBY NOTIFIED THAT PRIOR TO COMMENCING CONSTRUCTION, HE IS RESPONSIBLE FOR CONTACTING THE UTILITY COMPANIES INVOLVED AND REQUESTING A VERIFICATION AT THE CONSTRUCTION SITE OF THE LOCATIONS OF THEIR UNDERGROUND UTILITIES WHERE SUCH FACILITIES MAY POSSIBLY CONFLICT WITH THE PLACEMENT OF IMPROVEMENTS AS SHOWN ON THESE IMPROVEMENT PLANS. THE CONTRACTOR OR ANY SUBCONTRACTOR FOR THIS PROJECT WILL BE REQUIRED TO NOTIFY MEMBERS OF UNDERGROUND SERVICE ALERT 48 HOURS IN ADVANCE OF PERFORMING WORK, BY CALLING THE TOLL FREE NUMBER 1-800-642-2444. EXCAVATIONS FOR THE PURPOSE OF THESE REQUIREMENTS SHALL BE DEFINED AS BEING 18" (INCHES) OR MORE IN DEPTH.

10. ALL FILL WITHIN PAVED AREAS SHALL BE 95% COMPACTION. ALL OTHER FILL SHALL BE 90% COMPACTION. UNLESS OTHERWISE NOTED IN THE GEOTECHNICAL REPORT.

11. SOIL DENSITIES SHALL BE CERTIFIED BY THE GEOTECHNICAL ENGINEER. THE GEOTECHNICAL ENGINEER SHALL SUBMIT WRITTEN CERTIFICATION TO THE CONSULTING ENGINEER, THE OWNER AND THE CITY ENGINEER.

12. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY EROSION CONTROL, SHOULD THE PROJECT BE UNDER CONSTRUCTION BETWEEN OCTOBER 1 AND APRIL 15. TEMPORARY EROSION CONTROL SHALL CONSIST OF, BUT NOT BE LIMITED TO, CONSTRUCTING SUCH FACILITIES AND TAKING SUCH MEASURES AS ARE NECESSARY TO PREVENT, CONTROL, AND ABATE WATER, MUD AND EROSION DAMAGE TO PUBLIC AND PRIVATE PROPERTY AS A RESULT OF THE CONSTRUCTION OF THIS PROJECT. BY OCTOBER 1ST OF EACH YEAR, SUCH TEMPORARY EROSION CONTROL FEATURES AS ARE NECESSARY TO PREVENT DAMAGE DURING THE FORTHCOMING WINTER SEASON SHALL BE CONSTRUCTED AND FUNCTIONING. MUD AND SILT SHALL BE SETTLED OUT OF THE STORM RUNOFF BEFORE SAID RUNOFF LEAVES THE CONSTRUCTION SITE, ENTERS STORM DRAIN SYSTEMS, OR ENTERS A NATURAL CHANNEL.

13. SHOULD ANY PREHISTORIC (ARROWHEADS, MORTAR, HUMAN BONES) OR HISTORIC ARTIFACTS (GLASS, CERAMICS, METALS, NAILS) BE EXPOSED DURING EXCAVATION, GRADING OR CONSTRUCTION OPERATIONS, ALL WORK SHALL CEASE IMMEDIATELY WITHIN 50 METERS OF THE FOUND MATERIAL(S) AND THE COMMUNITY DEVELOPMENT DEPARTMENT SHALL BE IMMEDIATELY NOTIFIED. A QUALIFIED ARCHAEOLOGIST SHALL BE CONSULTED TO DETERMINE WHETHER ANY SUCH MATERIAL(S) ARE SIGNIFICANT PRIOR TO CONTINUING EXCAVATION, GRADING OR CONSTRUCTION ACTIVITIES AT THE ARCHAEOLOGIAL SITE. IF NECESSARY, FURTHER MITIGATION MEASURES MAY BE REQUIRED TO FURTHER REDUCE ANY ARCHAEOLOGICAL IMPACT TO A LESS THAN SIGNIFICANT LEVEL BEFORE CONSTRUCTION CONTINUES. STANDARIZED PROCEDURES FOR EVALUATION OF ACCIDENTAL FINDS AND DISCOVERY OF HUMAN REMAINS SHALL BE FOLLOWED AS PRESCRIBED IN APPENDIX K OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT.

14. GRADING, TRENCHING, CUTTING AND/OR FILLING WITHIN THE DRIP LINE OF THOSE TREES, DESIGNATED ON THE SITE PLAN FOR PRESERVATION, SHALL NOT OCCUR. NO ACTIONS SHALL BE TAKEN THAT WILL HARM THE HEALTH, VITALITY OR LONGEVITY OF THOSE TREES IDENTIFIED ON THE SITE PLAN FOR PRESERVATION.

15. NO REFULING, LUBRICANTION OR MAINTENANCE OF EARTHMOVING OR OTHER CONSTRUCTION VEHICLES SHALL BE DONE ANYWHERE ON THE SITE EXCEPT WITHIN APPROVED CONSTRUCTION STAGING AREAS.

16. ANY GRADING OPERATIONS OUTSIDE OF SUBDIVISION BOUNDARY SHALL REQUIRE A RIGHT-OF-ENTRY.

GENERAL PROTECTION GUIDELINES FOR TREES PLANNED FOR PRESERVATION

1. GREAT CARE MUST BE EXERCISED WHEN WORK IS CONDUCTED UPON OR AROUND PROTECTED TREES. THE PURPOSE OF THESE GENERAL PROTECTION MEASURES IS TO PROVIDE GUIDELINES TO PROTECT THE HEALTH OF THE AFFECTED PROTECTED TREES. THESE GUIDELINES APPLY TO ALL ENCROACHMENTS INTO THE PROTECTED ZONE OF A PROTECTED TREE, AND MAY BE INCORPORATED INTO TREE PERMITS AND/OR OTHER CONDITIONS OF APPROVAL AS DEEMED APPROPRIATE BY THE APPLICABLE GOVERNING BODY.

2. A CIRCLE WITH A RADIUS MEASUREMENT FROM THE TRUNK OF THE TREE TO THE TIP OF ITS LONGEST LIMB, PLUS ONE FOOT, SHALL CONSTITUTE THE CRITICAL ROOT ZONE PROTECTION AREA OF EACH PROTECTED TREE. LIMBS MUST NOT BE CUT BACK IN ORDER TO CHANGE THE DRIPLINE. THE AREA BENEATH THE DRIPLINE IS A CRITICAL PORTION OF THE ROOT ZONE AND DEFINES THE MINIMUM PROTECTED AREA OF EACH PROTECTED TREE. REMOVING LIMBS THAT MAKE UP THE DRIPLINE DOES NOT CHANGE THE PROTECTED AREA.

3. ANY PROTECTED TREES ON SITE WHICH REQUIRE PRUNING SHALL BE PRUNED BY AN ISA CERTIFIED ARBORIST PRIOR TO THE START OF CONSTRUCTION WORK. ALL PRUNING SHALL BE IN ACCORDANCE WITH THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) A300 PRUNING STANDARDS, ANSI STANDARD 2133.1-2000 REGARDING SAFETY PRACTICES, AND THE INTERNATIONAL SOCIETY OF ARBORICULTURE (ISA) "TREE PRUNING GUIDELINES" AND BEST MANAGEMENT PRACTICES.

4. PRIOR TO INITIATING CONSTRUCTION OR DEMOLITION, TEMPORARY CHAINLINK FENCING SHALL BE INSTALLED AT LEAST ONE FOOT OUTSIDE THE ROOT PROTECTION ZONE OF THE PROTECTED TREES IN ORDER TO AVOID DAMAGE TO THE TREE CANOPIES AND ROOT SYSTEMS. FENCING SHALL BE INSTALLED IN ACCORDANCE WITH THE APPROVED FENCING PLAN PRIOR TO THE COMMENCEMENT OF ANY GRADING OPERATIONS OR SUCH OTHER TIME AS DETERMINED BY THE REVIEW BODY. THE DEVELOPER SHALL CONTACT THE PROJECT ARBORIST AND THE PLANNING DEPARTMENT FOR AN INSPECTION OF THE FENCING PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES ON SITE.

5. SIGNS SHALL BE INSTALLED ON THE PROTECTIVE FENCE IN FOUR (4) EQUIDISTANT LOCATIONS AROUND EACH INDIVIDUAL PROTECTED TREE. THE SIZE OF EACH SIGN MUST BE A MINIMUM OF TWO (2) FEET BY TWO (2) FEET AND MUST CONTAIN THE FOLLOWING LANGUAGE:
   WARNING: THIS FENCE SHALL NOT BE REMOVED OR RELOCATED WITHOUT WRITTEN AUTHORIZATION FROM THE CITY OF SACRAMENTO.

6. ONCE APPROVAL HAS BEEN OBTAINED BY THE CITY OF SACRAMENTO PROTECTIVE FENCING SHALL REMAIN IN PLACE THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD AND SHALL NOT BE REMOVED, RELOCATED, TAKEN DOWN OR OTHERWISE MODIFIED IN WHOLE OR IN PART WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE AGENCY, OR AS DEEMED NECESSARY BY THE PROJECT ARBORIST TO FACILITATE APPROVED ACTIVITIES WITHIN THE ROOT PROTECTION ZONE.

7. ANY REMOVAL OF PAVING OR STRUCTURES (I.E. DEMOLITION) THAT OCCURS WITHIN THE DRIPLINE OF A PROTECTED TREE SHALL BE DONE UNDER THE DIRECT SUPERVISION OF THE PROJECT ARBORIST. TO THE MAXIMUM EXTENT FEASIBLE, DEMOLITION WORK WITHIN THE DRIPLINE PROTECTION AREA OF THE PROTECTED TREE SHALL BE PERFORMED BY HAND. IF THE PROJECT ARBORIST DETERMINES THAT IT IS NOT FEASIBLE TO PERFORM SOME PORTION(S) OF THIS WORK BY HAND, THEN THE SMALLEST/LIGHTEST WEIGHT EQUIPMENT THAT WILL ADEQUATELY PERFORM THE DEMOLITION WORK SHALL BE USED.

8. NO SIGNS, ROPES, CABLES (EXCEPT THOSE WHICH MAY BE INSTALLED BY AN ISA CERTIFIED ARBORIST TO PROVIDE LIMB SUPPORT) OR ANY OTHER ITEMS SHALL BE ATTACHED TO THE PROTECTED TREES. SMALL METALLIC NUMBERING TAGS FOR THE PURPOSE OF IDENTIFICATION IN PREPARING TREE REPORTS AND INVENTORIES SHALL BE ALLOWED.

9. NO VEHICLES, CONSTRUCTION EQUIPMENT, MOBILE HOMES/OFFICE, SUPPLIES, MATERIALS OR FACILITIES SHALL BE DRIVEN, PARKED, STOCKPILED OR LOCATED WITHIN THE DRIPLINES OF PROTECTED TREES.

10. DRAINAGE PATTERNS ON THE SITE SHALL NOT BE MODIFIED SO THAT WATER COLLECTS, STANDS OR IS DIVERTED ACROSS THE DRIPLINE OF ANY PROTECTED TREE.

11. NO TRENCHING SHALL BE ALLOWED WITHIN THE DRIPLINES OF PROTECTED TREES, EXCEPT AS SPECIFICALLY APPROVED BY THE PLANNING DEPARTMENT AS SET FORTH IN THE PROJECT'S CONDITIONS OF APPROVAL AND/OR APPROVED TREE PERMIT. IF IT IS ABSOLUTELY NECESSARY TO INSTALL UNDERGROUND UTILITIES WITHIN THE DRIPLINE OF A PROTECTED TREE THE UTILITY LINE WITHIN THE PROTECTED ZONE SHALL BE "BORED AND JACKED" OR PERFORMED UTILIZING HAND TOOLS TO AVOID ROOT INJURY UNDER THE DIRECT SUPERVISION OF THE PROJECT ARBORIST.

12. GRADING WITHIN THE PROTECTED ZONE OF A PROTECTED TREE SHALL BE MINIMIZED. CUTS WITHIN THE PROTECTED ZONE SHALL BE MAINTAINED AT LESS THAN 20% OF THE CRITICAL ROOT ZONE AREA. GRADE CUTS SHALL BE MONITORED BY THE PROJECT ARBORIST. ANY DAMAGED ROOTS ENCOUNTERED SHALL BE ROOT PRUNED AND PROPERLY TREATED AS DEEMED NECESSARY BY THE PROJECT ARBORIST.

13. MINOR ROOTS LESS THAN ONE (1) INCH IN DIAMETER ENCOUNTERED DURING APPROVED EXCAVATION AND/OR GRADING ACTIVITIES MAY BE CUT, BUT DAMAGED ROOTS SHALL BE TRACED BACK AND CLEANLY CUT BEHIND ANY SPLIT, CRACKED OR DAMAGED AREA AS DEEMED NECESSARY BY THE PROJECT ARBORIST.

14. MAJOR ROOTS GREATER THAN ONE (1) INCH IN DIAMETER ENCOUNTERED DURING APPROVED EXCAVATION AND/OR GRADING ACTIVITIES MAY NOT BE CUT WITHOUT APPROVAL OF THE PROJECT ARBORIST. DEPENDING UPON THE TYPE OF IMPROVEMENT BEING PROPOSED, BRIDGING TECHNIQUES OR A NEW SITE DESIGN MAY NEED TO BE EMPLOYED TO PROTECT THE ROOTS AND THE TREE.

15. CUT FACES, WHICH WILL BE EXPOSED FOR MORE THAN 2-3 DAYS, SHALL BE COVERED WITH DENSE BURLAP FABRIC AND WATERED TO MAINTAIN SOIL MOISTURE AT LEAST ON A DAILY BASIS (OR POSSIBLY MORE FREQUENTLY DURING SUMMER MONTHS). IF ANY NATIVE GROUND SURFACE FABRIC WITHIN THE PROTECTED ZONE MUST BE REMOVED FOR ANY REASON, IT SHALL BE REPLACED WITHIN FORTY-EIGHT (48) HOURS.

16. IF FILLS EXCEED 1 FOOT IN DEPTH UP TO 20% OF THE CRITICAL ROOT ZONE AREA, AERATION SYSTEMS MAY SERVE TO MITIGATE THE PRESENCE OF THE FILL MATERIALS AS DETERMINED BY THE PROJECT ARBORIST.

17. WHEN FILL MATERIALS ARE DEEMED NECESSARY ON TWO OR THREE SIDES OF A TREE IT IS CRITICAL TO PROVIDE FOR DRAINAGE AWAY FROM THE CRITICAL ROOT ZONE AREA OF THE TREE (PARTICULARLY WHEN CONSIDERING HEAVY WINTER RAINFALLS). OVERLAND RELEASES AND SUBTERRANEAN DRAINS DUG OUTSIDE THE CRITICAL ROOT ZONE AREA AND TIED DIRECTLY TO THE MAIN STORM DRAIN SYSTEM ARE TWO OPTIONS.

18. IN CASES WHERE A PERMIT HAS BEEN APPROVED FOR CONSTRUCTION OF A RETAINING WALL(S) WITHIN THE PROTECTED ZONE OF A PROTECTED TREE THE APPLICANT WILL BE REQUIRED TO PROVIDE FOR IMMEDIATE PROTECTION OF EXPOSED ROOTS FROM MOISTURE LOSS DURING THE TIME PRIOR TO COMPLETION OF THE WALL. THE RETAINING WALL WITHIN THE PROTECTED ZONE OF THE PROTECTED TREE SHALL BE CONSTRUCTED WITHIN SEVENTY-TWO (72) HOURS AFTER COMPLETION OF GRADING WITHIN THE ROOT PROTECTION ZONE.

19. THE CONSTRUCTION OF IMPERVIOUS SURFACES WITHIN THE DRIPLINE OF A PROTECTED TREE SHALL BE MINIMIZED. WHEN NECESSARY, A PIPED AERATION SYSTEM SHALL BE INSTALLED UNDER THE DIRECT SUPERVISION OF THE PROJECT ARBORIST.

20. PRESERVATION DEVICES SUCH AS AERATION SYSTEMS, TREE WELLS, DRAINS, SPECIAL PAVING AND CABLING SYSTEMS MUST BE INSTALLED IN CONFORMANCE WITH APPROVED PLANS AND CERTIFIED BY THE PROJECT ARBORIST.

21. NO SPRINKLER OR IRRIGATION SYSTEM SHALL BE INSTALLED IN SUCH A MANNER THAT SPRAYS WATER OR REQUIRES TRENCHING WITHIN THE DRIPLINE OF A PROTECTED TREE. AN ABOVE GROUND DRIP IRRIGATION SYSTEM IS RECOMMENDED. AN INDEPENDENT LOW-FLOW DRIP IRRIGATION SYSTEM MAY BE USED FOR ESTABLISHING DROUGHT-TOLERANT PLANTS WITHIN THE PROTECTED ZONE OF A PROTECTED TREE. IRRIGATION SHALL BE GRADUALLY REDUCED AND DISCONTINUED AFTER A TWO (2) YEAR PERIOD.

22. ALL PORTIONS OF PERMANENT FENCING THAT WILL ENCROACH INTO THE PROTECTED ZONE OF A PROTECTED TREE SHALL BE CONSTRUCTED USING POSTS SET NO CLOSER THAN TEN (10) FEET ON CENTER. POSTS SHALL BE SPACED IN SUCH A MANNER AS TO MAXIMIZE THE SEPARATION BETWEEN THE TREE TRUNKS AND THE POSTS IN ORDER TO REDUCE IMPACTS TO THE TREE(S).

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SHAWN B. SOMERS
No. C 80625
Exp. 3-31-25
6/14/2023

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ON-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION
SACRAMENTO, CA 95838
APN: 237-0200-092

GENERAL NOTES 2

Sheet
C2.2
3 of 14
6/12/2023

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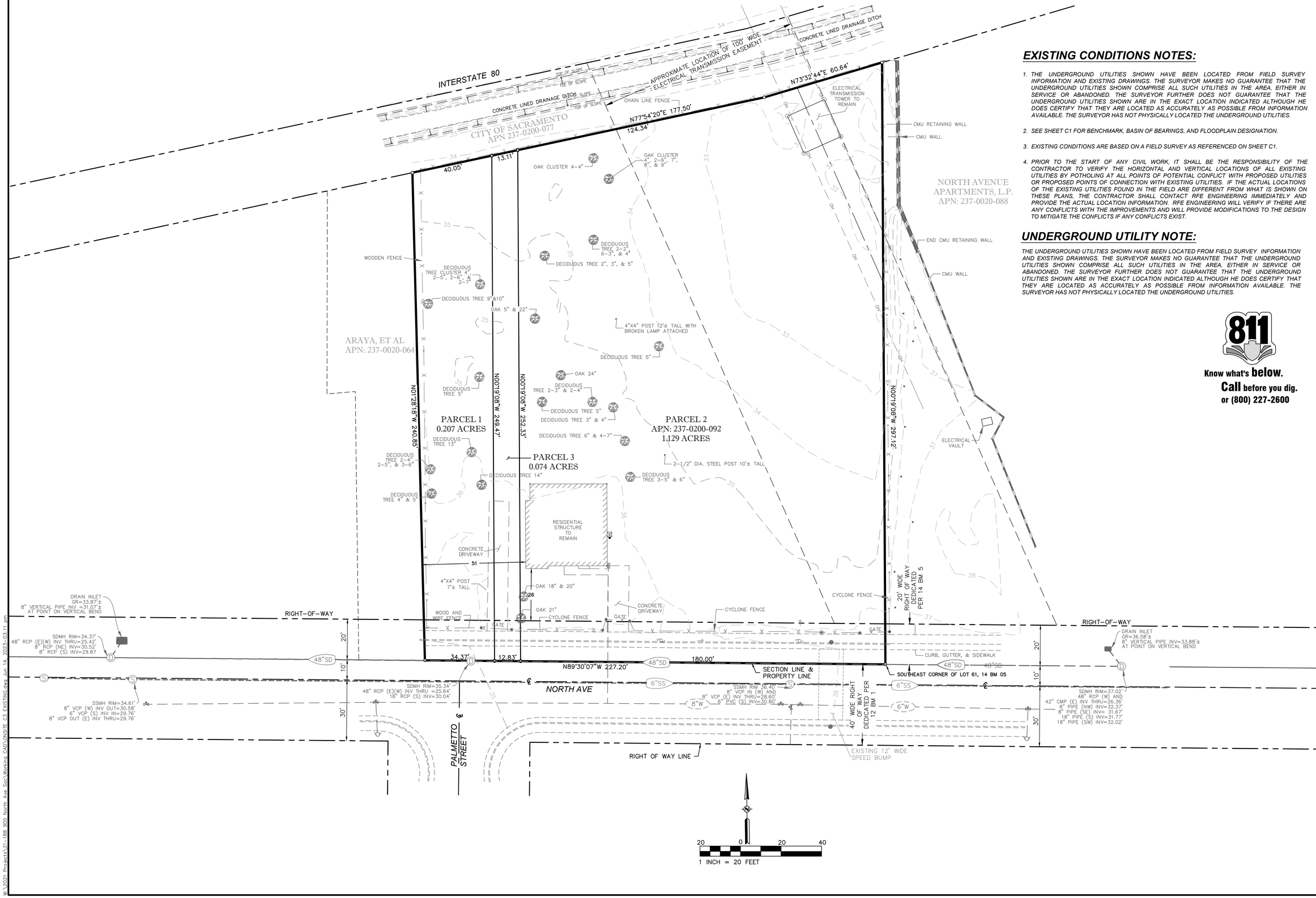

EXISTING CONDITIONS NOTES:

1. *THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.*
2. *SEE SHEET C1 FOR BENCHMARK, BASIN OF BEARINGS, AND FLOODPLAIN DESIGNATION.*
3. *EXISTING CONDITIONS ARE BASED ON A FIELD SURVEY AS REFERENCED ON SHEET C1.*
4. *PRIOR TO THE START OF ANY CIVIL WORK, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES BY POTHOLING AT ALL POINTS OF POTENTIAL CONFLICT WITH PROPOSED UTILITIES OR PROPOSED POINTS OF CONNECTION WITH EXISTING UTILITIES. IF THE ACTUAL LOCATIONS OF THE EXISTING UTILITIES FOUND IN THE FIELD ARE DIFFERENT FROM WHAT IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING IMMEDIATELY AND PROVIDE THE ACTUAL LOCATION INFORMATION. RFE ENGINEERING WILL VERIFY IF THERE ARE ANY CONFLICTS WITH THE IMPROVEMENTS AND WILL PROVIDE MODIFICATIONS TO THE DESIGN TO MITIGATE THE CONFLICTS IF ANY CONFLICTS EXIST.*

UNDERGROUND UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

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ON-SITE IMPROVEMENT PLANS FOR
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EXISTING CONDITIONS

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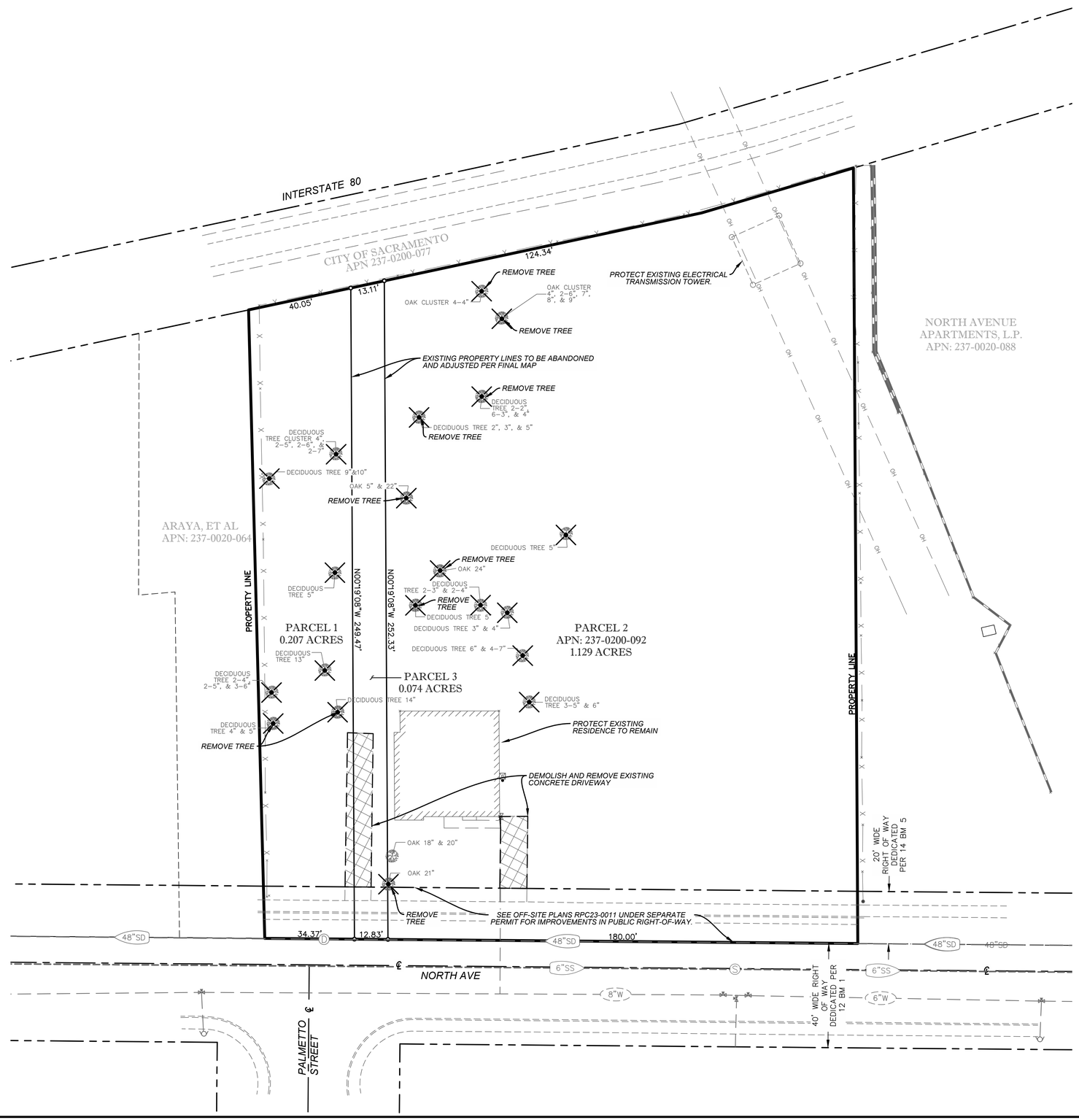

DEMOLITION LEGEND:

DEMOLISH AND REMOVE

TREE TO BE REMOVED

DEMOLITION PLAN NOTES:

1. SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT AND PORTLAND CEMENT CONCRETE SIDEWALKS AND CURB AND GUTTERS WITHIN THE LIMITS OF DEMOLITION. ENGINEER SHALL VERIFY LIMITS OF DEMOLITION. PROTECT EXISTING PAVEMENTS AND IMPROVEMENTS TO REMAIN.
2. THE DISPOSAL OF ALL DEBRIS IS THE RESPONSIBILITY OF THE CONTRACTOR AND IT SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL REGULATIONS. ANY PERMITS REQUIRED FOR SUCH DISPOSAL ARE THE RESPONSIBILITY OF THE CONTRACTOR.
3. SAWCUT ASPHALT 2' MIN FROM (E) CURB, (P) CURB OR AS OTHERWISE SHOWN ON PLANS.
4. REMOVE EXISTING VEGETATION, MULCH, IRRIGATION, AND OTHER AS REQUIRED IN AREA OF PROJECT IMPROVEMENTS. CAP AND RELOCATE IRRIGATION AS NEEDED. SEE LANDSCAPE PLANS.
5. EXISTING FACILITIES (e.g. IRRIGATION, ELECTRICAL) TO REMAIN SHALL BE PROTECTED DURING CONSTRUCTION. SEE APPLICABLE LANDSCAPE, ELECTRICAL AND ARCHITECTURAL PLANS.
6. REMOVE EXISTING PCC TO LIMITS SHOWN. SAWCUT AT EXISTING SCORE AND/OR EXPANSION JOINTS WHEN POSSIBLE.
7. ANY WORK IN THE CITY ROW SHALL REQUIRE A TRAFFIC CONTROL PLAN PRIOR TO THE ISSUANCE OF ANY PERMIT.
8. ANY PAVEMENT CUT AND REPAIR WITHIN THE CITY ROW SHALL BE REPAIRED PER CITY OF SACRAMENTO STANDARDS.
9. THE CONTRACTOR SHALL COMPLY WITH PROVISIONS OF THE SAFETY AND HEALTH REGULATION FOR CONSTRUCTION, PROMULGATED BY THE SECRETARY OF LABOR UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (40 USC 327 ET SEQ.) AS SET FORTH IN TITLE 29, C.F.R., CAL/OSHA, AND THE REGULATIONS ISSUED THEREUNDER. COMPLIANCE SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY.
10. THE CONTRACTOR SHALL COMPLY WITH CURRENT CALIFORNIA FIRE CODE (CFC), CALIFORNIA CODE OF REGULATIONS, (CCR) TITLE 24, PART9, ARTICLE 87 - FIRE SAFETY DURING CONSTRUCTION ALTERATION OR DEMOLITION OF A BUILDING, SECTION 8706 - FIRE SAFETY DURING DEMOLITION.
11. THE CONTRACTOR SHALL PROVIDE 72 HOUR NOTICE TO THE OWNER AND ANY AFFECTED UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY DEMOLITION ACTIVITIES.
12. EXISTING UTILITIES: LOCATE, IDENTIFY, DISCONNECT AND SEAL OR CAP OFF INDICATED UTILITIES TO BE DEMOLISHED. EXISTING UNUSED SERVICES SHALL BE ABANDONED.
13. PROTECT EXISTING LANDSCAPING MATERIALS, APPURTENANCES, AND STRUCTURES WHICH ARE NOT TO BE DEMOLISHED. PROVIDE TEMPORARY IRRIGATION WHEN IRRIGATION SUPPLY TO BE DISRUPTED.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING MOVEMENT OR SETTLEMENT OF ADJACENT STRUCTURES, AND PROTECTION OF ADJACENT UNDERGROUND UTILITIES. CONTRACTOR SHALL PROVIDE BRACING AND SHORING WHEN REQUIRED.
15. EXISTING UTILITIES TO BE REMOVED: DEMOLISH AND REMOVE EXISTING BELOW GRADE UTILITIES UNLESS OTHERWISE NOTED.
16. REMOVE MATERIALS TO BE RE-INSTALLED OR RETAINED IN MANNER TO PREVENT DAMAGE. STORE AND PROTECT.
17. BACKFILL OPEN PITS AND HOLES CAUSED AS A RESULT OF DEMOLITION WITH EXCESS SOIL ON SITE PER RECOMMENDATIONS CONTAINED IN THE SOILS REPORT FOR BACKFILL MATERIAL.
18. UNIFORMLY ROUGH GRADE AND COMPACT AREAS AFFECTED BY DEMOLITION TO MAINTAIN SITE GRADES AND CONTOURS.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF CONSTRUCTION AREA AND PROTECTION OF PUBLIC SAFETY DURING ALL TIMES DURING DEMOLITION WORK.
20. HAZARDOUS MATERIALS:
    A. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS, PROCEDURES, AND ABATEMENT SPECIFICATIONS FOR THE SAFE REMOVAL OF HAZARDOUS WASTE MATERIALS.
    B. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT DISTURB. NOTIFY ENGINEER & ARCHITECT.
    C. CONFORM TO APPLICABLE REGULATORY PROCEDURES WHEN DISCOVERING HAZARDOUS OR CONTAMINATED MATERIALS.
21. PROTECT (E) IRRIGATION AND MAINTAIN TO ALL LANDSCAPE AREAS NOT DISTURBED BY THE PROJECT DURING CONSTRUCTION.
22. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH APPLICABLE DRY UTILITY AGENCIES FOR ABANDONMENT OR REMOVAL OF EXISTING SERVICES PRIOR TO COMMENCEMENT OF SITE DEMOLITION. THE OWNER AND ENGINEER WILL NOT BE HELD RESPONSIBLE FOR ANY DAMAGES OR CLAIMS RESULTING FROM FAILURE TO PROPERLY COORDINATE WITH DRY UTILITY AGENCIES.
23. CONTRACTOR SHALL IMPLEMENT CITY OF SACRAMENTO TREE PRESERVATION REQUIREMENTS, SEE NOTES ON SHEET C2.2.
24. INSTALL 20'X10' CHAIN LINK FENCING AROUND EXISTING TREES TO REMAIN PRIOR TO DEMOLITION. COMPLY WITH TREE PROTECTION MEASURES IN GENERAL NOTES. SEE SHEET C2.2.
25. EXISTING IMPROVEMENTS THAT ARE DETERMINED DETERIORATED BY THE PUBLIC WORKS INSPECTOR DURING CONSTRUCTION OR AT FINAL WALK THRU INSPECTION SHALL BE RECONSTRUCTED TO THE SATISFACTION OF PUBLIC WORKS. CONSTRUCTION SHALL BE COMPLETED PRIOR TO THE ISSUANCE OF NOTICE OF COMPLETION (NOC). ALL COSTS ASSOCIATED WITH THIS RECONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER AND/OR CONTRACTOR.

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ON-SITE IMPROVEMENT PLANS FOR
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DEMOLITION PLAN

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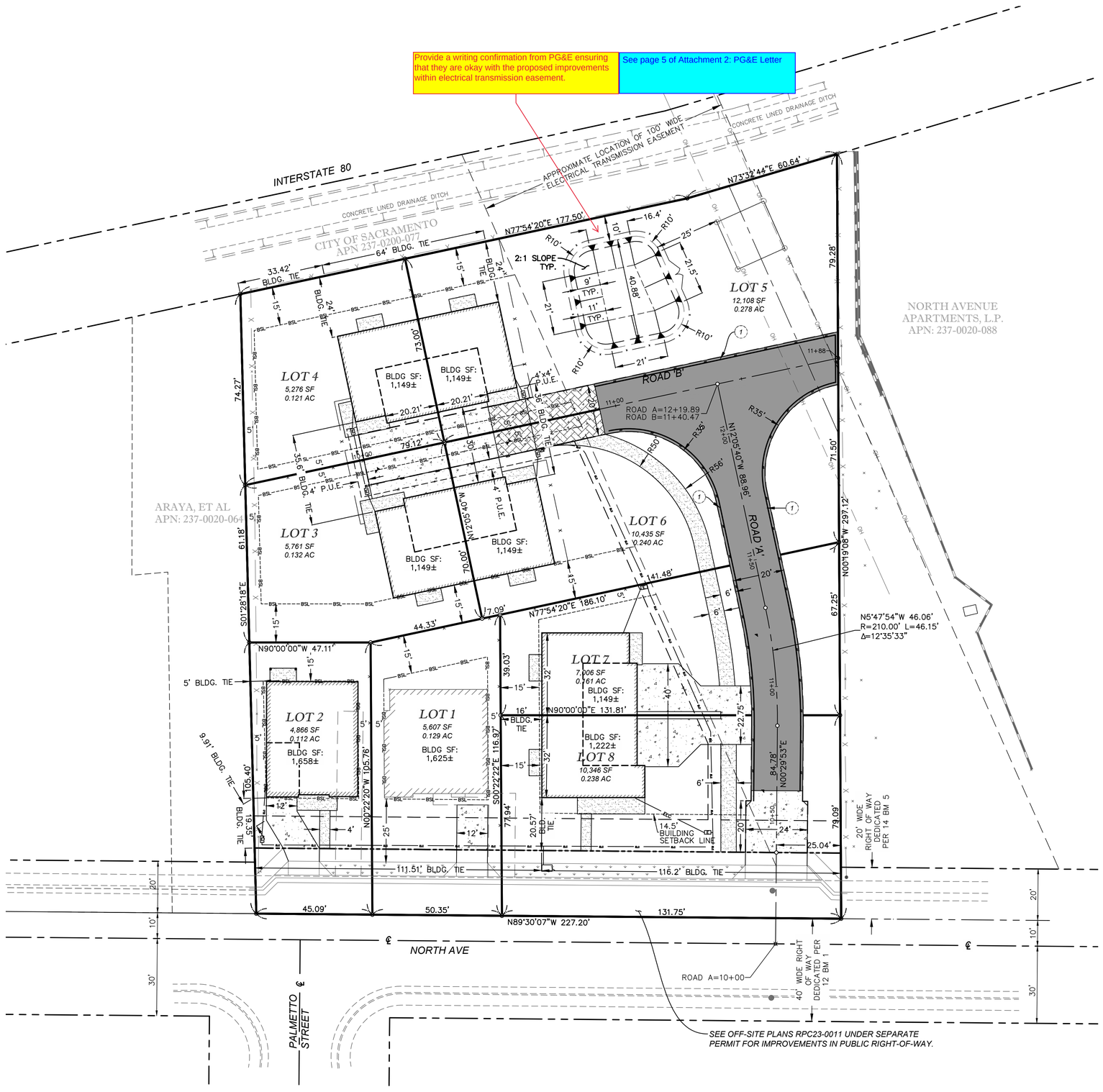
Provide a writing confirmation from PG&E ensuring that they are okay with the proposed improvements within electrical transmission easement.

See page 5 of Attachment 2: PG&E Letter



NOTES:

DIMENSIONS ARE TO BOTTOM FACE OF CURB UNLESS SPECIFIED OTHERWISE. BUILDING OUTLINE REPRESENT THE OUTER-MOST ELEMENT OF BUILDINGS. CONTRACTOR SHALL REFER TO FOUNDATION PLANS FOR CONSTRUCTION OF FOUNDATION AND BUILDING SLAB.

UNDERGROUND UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

NOTICE TO CONTRACTOR - ORDER OF WORK:

PRIOR TO THE START OF ANY CIVIL WORK, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES BY POTHOLING AT ALL POINTS OF POTENTIAL CONFLICT WITH PROPOSED UTILITIES OR PROPOSED POINTS OF CONNECTION WITH EXISTING UTILITIES. IF THE ACTUAL LOCATIONS OF THE EXISTING UTILITIES FOUND IN THE FIELD ARE DIFFERENT FROM WHAT IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING IMMEDIATELY AND PROVIDE THE ACTUAL LOCATION INFORMATION. RFE ENGINEERING WILL VERIFY IF THERE ARE ANY CONFLICTS WITH THE IMPROVEMENTS AND WILL PROVIDE MODIFICATIONS TO THE DESIGN TO MITIGATE THE CONFLICTS IF ANY CONFLICTS EXIST.

LEGEND:

BUILDING SETBACK ——BSL——BSL——BSL——

FIRE LANE STRIPING ————————

FIRE STRIPING KEY NOTE:

(1) *FIRE LANE DESIGNATION STRIPE AS DELINEATED ON THE DRAWINGS. CURBS SHALL BE PAINTED RED MARKED BY WHITE LETTERING "FIRE LANE - NO PARKING" A MINIMUM OF THREE INCHES TALL WITH A ½ INCH WIDE MINIMUM STROKE. THE INTERVAL BETWEEN STENCILED LETTERING SHALL BE ADEQUATE TO INFORM THE PUBLIC OF THE EXISTENCE OF THE FIRE LANE BUT IN NO EVENT SHALL THE INTERVAL EXCEED 50 FEET.*

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PROFESSIONAL ENGINEER — REGISTERED — SHAWN B. SOMERS — No. C 80625 Exp. 3-31-25 — 6/14/2023 — CIVIL — STATE OF CALIFORNIA

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ON-SITE IMPROVEMENT PLANS FOR
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HORIZONTAL CONTROL PLAN

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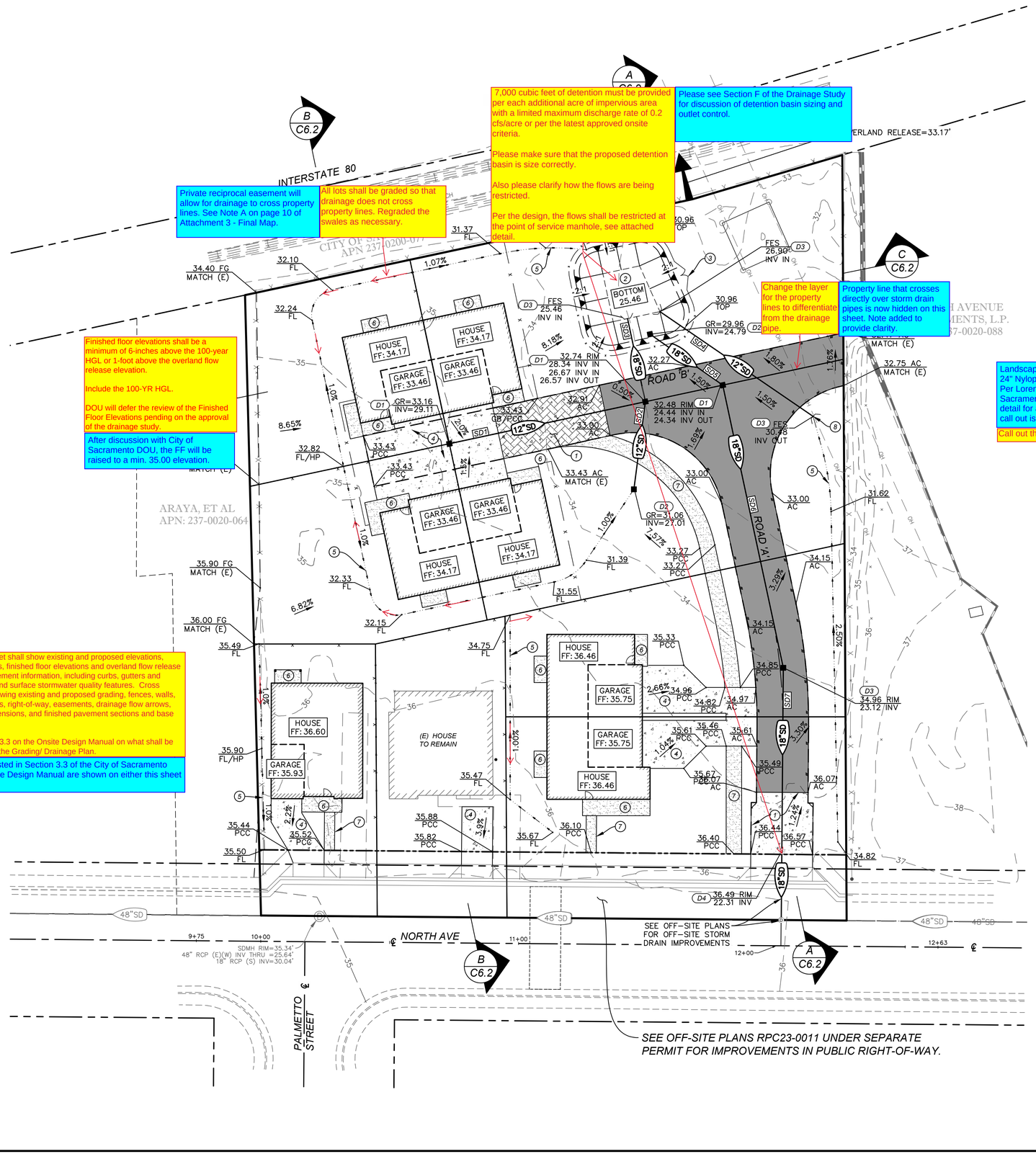

LEGEND:

- OVERLAND RELEASE
- DRAINAGE FLOW DIRECTION
- GATE AND FENCING - SEE ARCHITECTURAL PLANS
- AC DRIVE AISLE (TI=6.0) 4" HMA / 12" CL 2 AB
- HEAVY DUTY PCC (4,000 PSI) 6" PCC / 7" CL 2 AB NO. 4 REBAR @ 12" OCEW
- PEDESTRIAN PCC (4,000 PSI) 4" PCC / 6" CL 2 AB NO.4 REBAR @ 18" OCEW
- LANDSCAPING SEE LANDSCAPE PLANS

GRADING CONSTRUCTION KEYNOTES:

1. CONSTRUCT 6" STAMPED CONCRETE DRIVEWAY. SEE ARCHITECTURAL AND LANDSCAPE PLANS FOR PATTERN DETAILS.
2. CONSTRUCT STORMWATER DETENTION / SEDIMENT POND.
3. PLACE 6' HIGH SECURITY FENCE AROUND PERIMETER OF DETENTION BASIN WITH ACCESS GATE. SEE ARCHITECTURAL PLANS FOR DETAILS.
4. CONSTRUCT CONCRETE DRIVEWAY.
5. CONSTRUCT VEGETATED DRAINAGE SWALE AT A MIN. 1.0% SLOPE. SEE DETAIL 3, SHEET C10.2 FOR SWALE DETAILS.
6. CONSTRUCT CONCRETE PATIOS, PORCH. WITH 4" PCC / 6" CLASS 2 AB. CONCRETE TO BE 4" BELOW HOUSE ELEVATION AT DOOR THRESHOLD AND 4" ABOVE ADJACENT FINISHED GRADE. CONTRACTOR TO SLOPE CONCRETE A MAXIMUM 2% AWAY FROM HOUSE.
7. CONSTRUCT ON-SITE CONCRETE PEDESTRIAN SIDEWALK PER DETAIL 1, SHEET C10.2.
8. CONSTRUCT DITCH BOX PER SACRAMENTO CITY STANDARD DETAIL S-30, REFERENCED ON SHEET C10.2.

STORMDRAIN CONSTRUCTION KEYNOTES:

- D1 INSTALL DRAIN INLET TYPE 1 OR APPROVED EQUAL (EXCLUDING LANDSCAPE AND DRAINAGE INLET) PER DETAIL 5, SEE SHEET C10.2.
- D2 INSTALL INLET ON 29.80 CONTOUR OF SLOPE.
- D3 INSTALL FLARED END SECTION WITH ROCK SLOPE PROTECTION PER DETAIL 7, SEE SHEET C10.2. - REF. CASQA BMP EC-10.
- D4 INSTALL STORM DRAIN MANHOLE PER SACRAMENTO CITY STANDARD DWG. NO. S-70, REFERENCED ON SHEET C10.2.

Landscape drain inlet has been updated to: 24" Nyloplast drain basin (or approved equal). Per Lorenzo Hernandez of City of Sacramento, the City does not have a specific detail for a landscape drain inlet, so a general call out is used.

Call out the detail for this landscape drain inlet.

Use standard manhole 3A per City Standard Drawing S-80, when greater than 8-feet deep and less the 27" diameter..

Revised to Standard Drawing S-80. Detail 4 on sheet C10.2 also updated.

NOTES:

1. ALL VALVES, MANHOLES, CLEANOUTS, DI'S, ETC. WITHIN LIMITS OF CONSTRUCTION TO BE ADJUSTED TO FINISH GRADE AS NEEDED.
2. SEE PAVEMENT SECTIONS ON REFERENCED ON LEGENDS.
3. GRADING AND PAVING SHALL BE IN ACCORDANCE WITH PROJECT GEOTECHNICAL REPORT.
4. VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION.
5. SEE SHEET C1 FOR APPROXIMATE EARTHWORK SUMMARY.
6. SEE SHEET C2 FOR CITY MANDATORY GRADING NOTES.
7. ALL 6", 8", AND 12" PIPING SHOWN HEREON LEADING TO LANDSCAPE DRAINS AND ROOF LEADERS SHALL BE INSTALLED AT MINIMUM SLOPES OF 1.0%, 0.50%, AND 0.35%, RESPECTIVELY.
8. STRUCTURAL SECTIONS ASSUME LIME TREATED SUBGRADE PER GEOTECHNICAL REPORT. REFERENCE GEOTECHNICAL REPORT LIME TREATMENT RECOMMENDATIONS.
9. PRIOR TO PLACEMENT OF PAVING/CONCRETE, UPPER 8" OF LIME TREATED SUBGRADE SOILS SHALL BE COMPACTED TO 95% RC AT OPTIMUM MOISTURE CONTENT.
10. COMPACT ALL AGGREGATE BASE TO 95% RC.
11. ALL PAVING/CONCRETE SHALL BE PER THE GEOTECHNICAL REPORT REFERENCED ON SHEET C1.

Drainage pipe material in private storm drain systems shall comply with the approved drainage pipe material specified in Section 26-4 of the City of Sacramento Standard Specifications, with two exceptions:
- Landscaped areas with drainage pipe less than 6-inches in diameter may use single wall corrugated drainage pipe or other approved alternative pipe material.
- Oversized drainage pipe used for detention purposes may be either high-density polyethylene (HDPE) or aluminized steel type 2 or polymer coated corrugated metal pipe (CMP).

Revise pipe material accordingly.

Pipe material revised from HDPE to PVC.

STORM DRAIN PIPE TABLE

PIPE #	SIZE	LENGTH	MATERIAL	BEARING	SLOPE
SD1	12"	78 LF	HDPE	N77°54'20"E	1.00%
SD2	12"	34 LF	HDPE	N07°26'29"E	1.00%
SD3	18"	33 LF	HDPE	N12°05'41"W	3.36%
SD4	12"	72 LF	HDPE	N55°37'39"W	4.98%
SD5	18"	34 LF	HDPE	S54°58'45"E	1.00%
SD6	18"	112 LF	HDPE	S12°05'35"E	1.00%
SD7	18"	71 LF	HDPE	S00°28'12"W	1.00%

1 INCH = 20 FEET

CA LICENSED CIVIL ENGINEER OR LAND SURVEYOR SHALL PREPARE AND SUBMIT A GRADING CERTIFICATION LETTER TO THE CITY BUILDING INSPECTOR CERTIFYING THE PAD ELEVATIONS PRIOR TO FOOTING INSPECTION AND CERTIFYING FINAL GRADING PRIOR TO THE PROJECT'S FINAL INSPECTION.

"I HAVE COMPLIED WITH THE CRITERIA OF SACRAMENTO CITY CODE CHAPTER 15.92 AND APPLIED THEM ACCORDING FOR THE EFFICIENT USE OF WATER IN THE GRADING DESIGN PLAN."

SHAWN B. SOMERS, P.E. C80625 — DATE 6/14/2023

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DRAWN	MJW					
QUANT.	DCJ					
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ORIGINAL SCALE IS IN INCHES (0, 1, 2)

REGISTERED PROFESSIONAL ENGINEER SHAWN B. SOMERS No. C 80625 Exp. 3-31-25 6/14/2023 CIVIL STATE OF CALIFORNIA

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ON-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION
SACRAMENTO, CA 95838
APN: 237-0200-092

GRADING, DRAINAGE AND PAVING PLAN

Sheet **C6.1**

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6/12/2023

CWE PROJECT NO. 21-188 – 1905 NORTH AVENUE, SACRAMENTO, CA 95838

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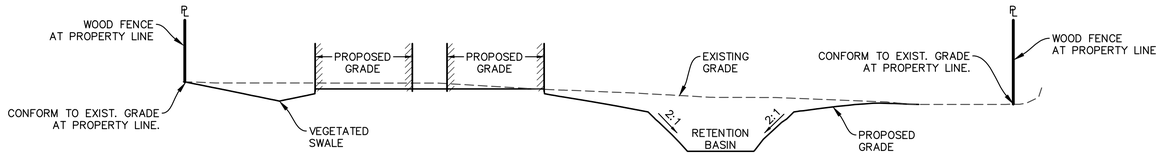
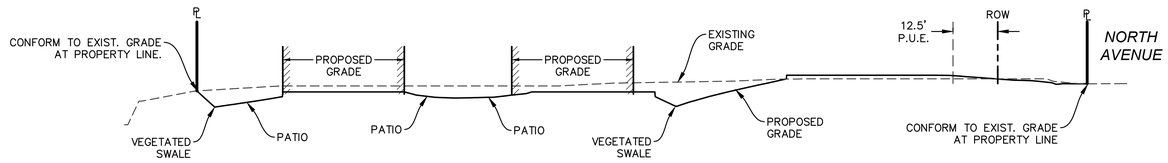
Please note that drainage shall not cross property lines. Each lot shall drain from rear to front. Add a cross section that reflects independently drainage.

Private reciprocal easement will allow for drainage to cross property lines. See Note A on page 10 of Attachment 3 - Final Map.



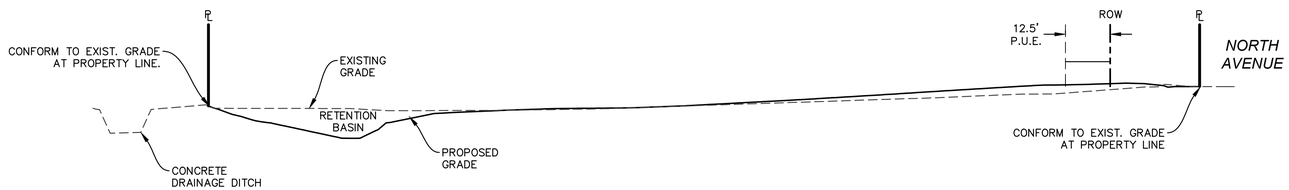
C - SECTION C

SCALE: 1" = 20'



B - SECTION B

SCALE: 1" = 20'



A - SECTION A

SCALE: 1" = 20'

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GRADING AND DRAINAGE DETAILS

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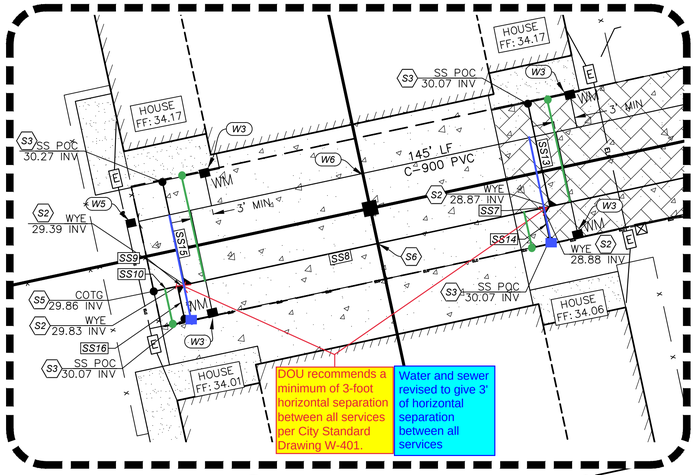
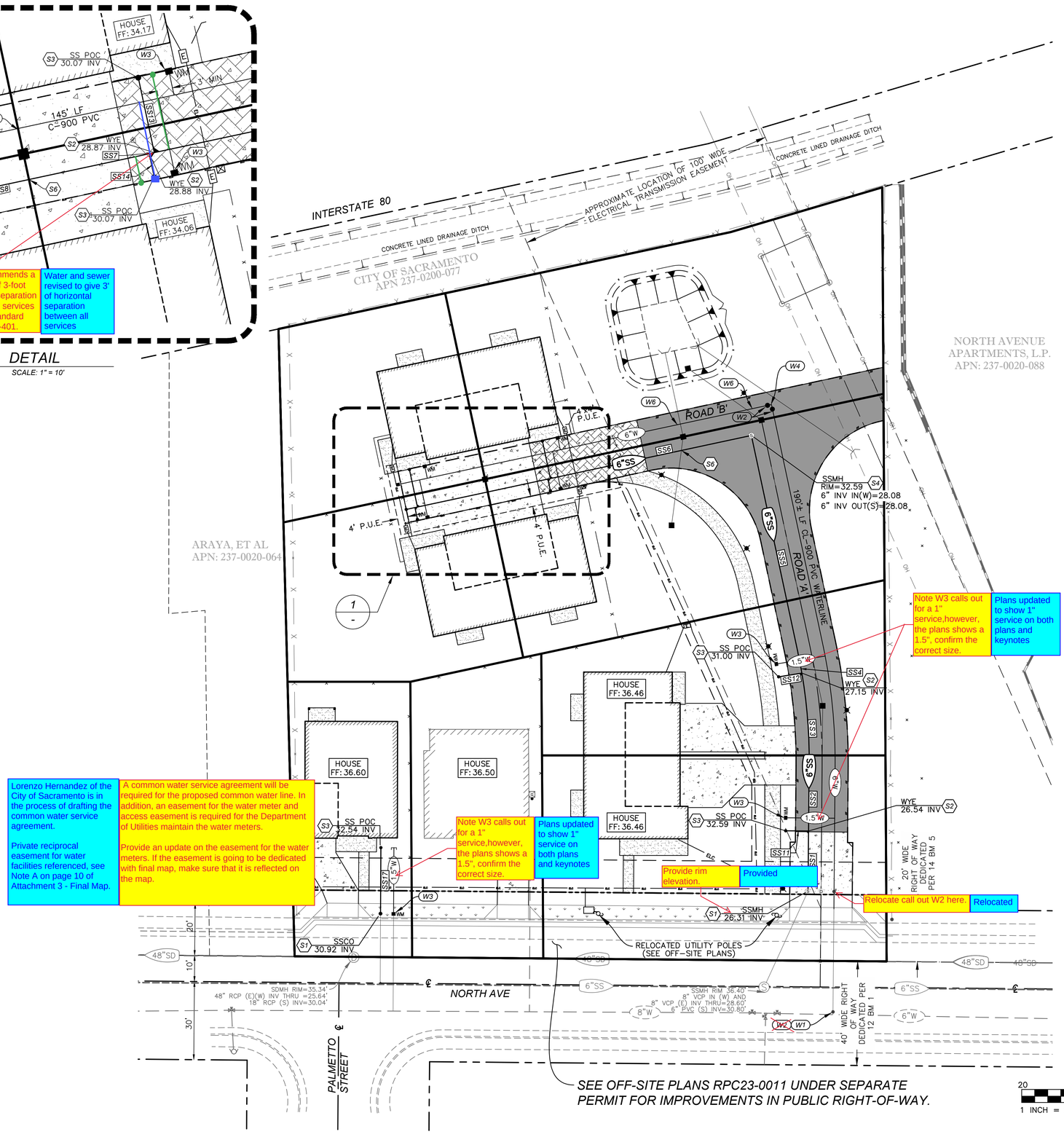


1 - DETAIL
SCALE: 1" = 10'



WATER CONSTRUCTION KEYNOTES:

- (W1) CONNECT TO EXISTING 6" WATER STUB AT RIGHT-OF-WAY. SEE OFF-SITE PLANS UNDER SEPARATE PERMIT FOR WATER CONNECTION IN PUBLIC RIGHT-OF-WAY.
- (W2) INSTALL 6" GATE VALVES PER SACRAMENTO CITY STANDARD DETAILS W-303 AND W-304, REFERENCED ON SHEET C10.1.
- (W3) INSTALL 1" RESIDENTIAL WATER SERVICE WITH METER BOX, METER SETTER, AND ALL ASSOCIATED FITTING PER CITY OF SACRAMENTO STANDARD DETAILS W-402 AND W-405, REFERENCED ON SHEET C10.1. WATER METERS TO BE INSTALLED AND WATER DEVELOPMENT FEE TO BE COLLECTED WITH ON-SITE BUILDING PERMIT FOR EACH RESIDENCE.
- (W4) INSTALL 90 DEG BEND WITH THRUST BLOCKING PER CITY OF SACRAMENTO STANDARD DETAILS W-103, REFERENCED ON SHEET C10.1.
- (W5) INSTALL 2" BLOW-OFF VALVE ASSEMBLY PER CITY OF SACRAMENTO STANDARD DETAIL W-301, REFERENCED ON SHEET C10.1.
- (W6) PROVIDE A MIN. OF 12" VERTICAL SEPARATION BETWEEN CROSSING UTILITY PIPES.

SANITARY SEWER CONSTRUCTION KEYNOTES:

- (S1) CONNECT TO EXISTING SANITARY SEWER 48" MANHOLE. SEE OFF-SITE PLANS FOR CONNECTION DETAILS.
- (S2) PROVIDE 4" LATERAL SEWER SERVICE CONNECTION WITH LONG SWEEP WYE FITTING.
- (S3) SANITARY SEWER POINT OF CONNECTION WITH 2-WAY CLEANOUT PER CITY OF SACRAMENTO STANDARD DETAIL S-260 AND S-265, REFERENCED ON SHEET C10.3. VERIFY CONNECTION WITH PLUMBING AND ARCHITECTURAL PLANS.
- (S4) PLACE 48" SANITARY SEWER STANDARD MANHOLE NO.3 PER CITY OF SACRAMENTO STANDARD DETAIL S-70, REFERENCED ON SHEET C10.2.
- (S5) PLACE 1-WAY CLEANOUT FLUSHING BRANCH.
- (S6) PROVIDE A MIN. OF 12" VERTICAL SEPARATION BETWEEN CROSSING UTILITY PIPES.

NOTES:

1. ALL ON-SITE WATER AND SEWER IS PRIVATE.
2. STUB UTILITIES 5' FROM BUILDING.
3. VERIFY HORIZONTAL AND VERTICAL LOCATION OF WATER AND SANITARY SEWER.
4. CONNECTIONS AT BUILDING POCS WITH PLUMBING PLANS PRIOR TO CONSTRUCTION.
5. SEE LANDSCAPE AND IRRIGATION PLANS FOR CONTINUATION OF IRRIGATION LINES.
6. SEE GRADING PLANS FOR DETAILS ON STORM DRAIN LINES.
7. THRUST BLOCKS FOR WATERLINES SHALL BE PER CITY STANDARD DRAWING W-103, SHEET C10.1.
8. 6" WATERLINES SHALL BE PVC C-900 CL 150 OR APPROVED EQUAL UNLESS OTHERWISE SHOWN.
9. BEDDING, INITIAL AND TRENCH BACKFILL FOR WATER SHALL BE CONSTRUCTED PER CITY STANDARD SD-16 AND THE CITY SPECIFICATIONS.
10. PIPE BEDDING FOR SANITARY SEWER SHALL BE PER COUNTY STD. DWG. 7-4, SHEET C10.3.
11. STREET LIGHTS SHOWN FOR REFERENCE ONLY. VERIFY LOCATIONS WITH SITE LIGHTING PLANS.

STREET LIGHT NOTE:

1. ALL ON-SITE STREET LIGHTS INCLUDING POWER WILL BE PRIVATE.

SANITARY SEWER PIPE TABLE

PIPE #	SIZE	LENGTH	MATERIAL	SLOPE
SS1	6"	23 LF	SDR-35 PVC	1.00%
SS2	6"	25 LF	SDR-35 PVC	1.00%
SS3	6"	36 LF	SDR-35 PVC	1.00%
SS4	6"	8 LF	SDR-35 PVC	1.00%
SS5	6"	85 LF	SDR-35 PVC	1.00%
SS6	6"	79 LF	SDR-35 PVC	1.00%
SS7	6"	1 LF	SDR-35 PVC	1.00%
SS8	6"	51 LF	SDR-35 PVC	1.00%
SS9	6"	1 LF	SDR-35 PVC	1.00%
SS10	6"	3 LF	SDR-35 PVC	1.00%
SS11	4"	9 LF	SDR-35 PVC	1.00%
SS12	4"	9 LF	SDR-35 PVC	1.00%
SS13	4"	15 LF	SDR-35 PVC	1.44%
SS14	4"	5 LF	SDR-35 PVC	1.45%
SS15	4"	15 LF	SDR-35 PVC	5.94%
SS16	4"	5 LF	SDR-35 PVC	1.24%
SS17	4"	25 LF	SDR-35 PVC	2.42%

NOTE:
ALL CONSTRUCTION WITHIN PUBLIC RIGHT OF WAY AND WITHIN P.U.E. SHALL HAVE ENCROACHMENT PERMIT FROM DEPT. OF TRANSPORTATION - DEV. ENGINEERING.

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ON-SITE IMPROVEMENT PLANS FOR
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SACRAMENTO, CA 95838
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UTILITY PLAN

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D - SECTION
SCALE: 1" = 10'

E - SECTION
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C - SECTION
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B - SECTION
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A - SECTION
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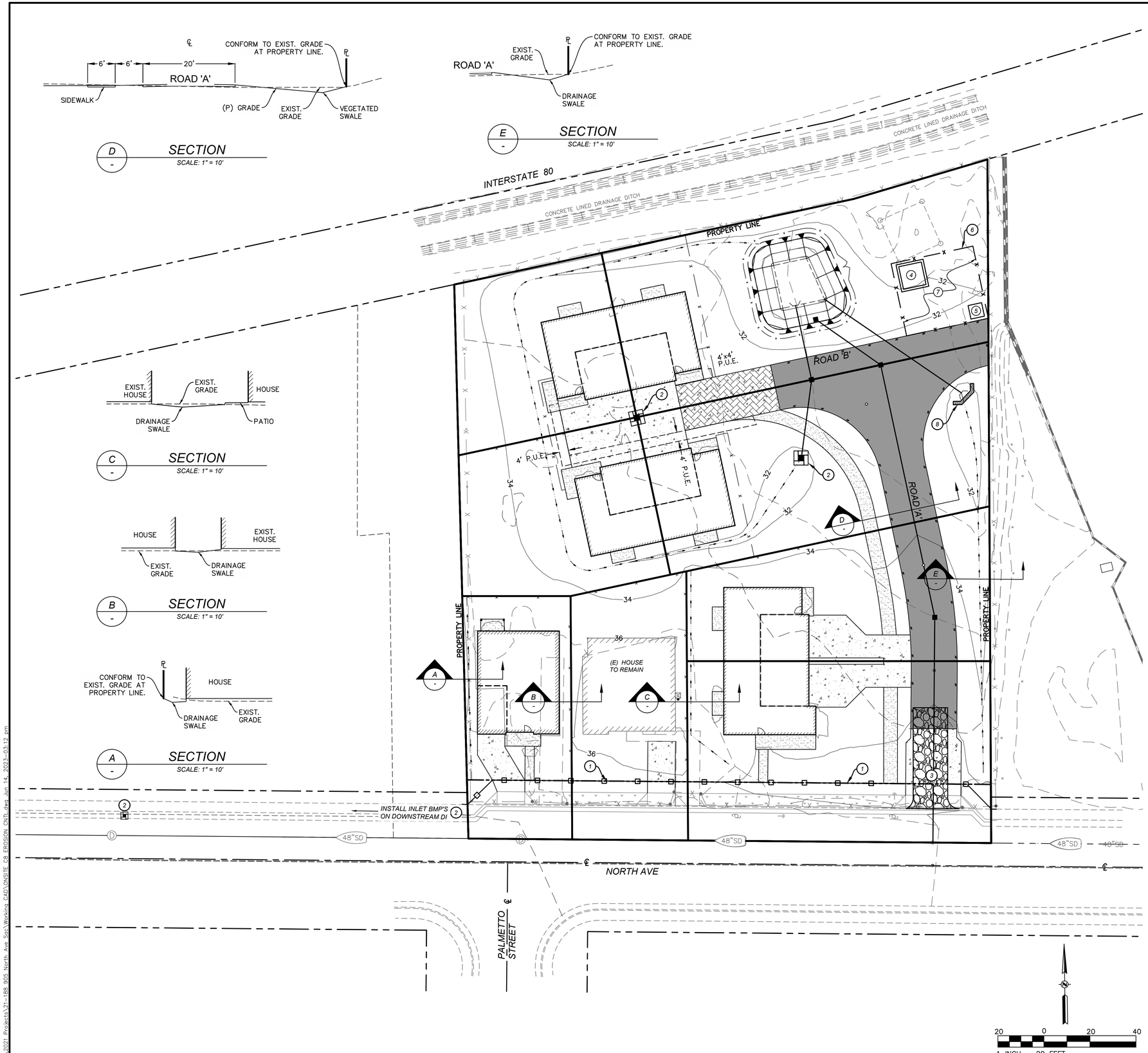

LEGEND:

FIBER ROLL

SURFACE FLOW

GRAVEL BAG AND INLET FILTER

TEMPORARY STABILIZED CONSTRUCTION ENTRANCE

OVERLAND RELEASE

CULVERT CHECK DAM

CONCRETE WASHOUT

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES: EROSION AND SEDIMENT CONTROL NOTES:

1. THE CONTRACTOR SHALL FOLLOW THE GUIDELINES FOR THE CITY OF SACRAMENTO'S "ADMINISTRATIVE AND TECHNICAL PROCEDURES MANUAL FOR GRADING AND EROSION AND SEDIMENT CONTROL" FOR THE MEASURES SHOWN OR STATED ON THESE PLANS.
2. CONTRACTOR MUST ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE ONSET OF ANY STORM. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE FOR THE WINTER MONTHS PRIOR TO OCTOBER 1.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED. CHANGES TO THIS EROSION AND SEDIMENT CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF A REPRESENTATIVE OF THE DEPARTMENT OF UTILITIES.
4. THIS PLAN MAY NOT COVER ALL THE SITUATIONS THAT ARISE DURING CONSTRUCTION DUE TO UNANTICIPATED FIELD CONDITIONS. VARIATIONS MAY BE MADE TO THE PLAN IN THE FIELD SUBJECT TO THE APPROVAL OF OR AT THE DIRECTION OF A REPRESENTATIVE OF THE DEPARTMENT OF UTILITIES.
5. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BEFORE AND AFTER ALL STORMS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
6. CONTRACTOR SHALL MAINTAIN A LOG AT THE SITE OF ALL INSPECTIONS OR MAINTENANCE OF BMPS, AS WELL AS, ANY CORRECTIVE CHANGES TO THE BMPS OR EROSION AND SEDIMENT CONTROL PLAN.
7. IN AREAS WHERE SOIL IS EXPOSED, PROMPT REPLANTING WITH NATIVE COMPATIBLE, DROUGHT-RESISTANT VEGETATION SHALL BE PERFORMED. NO AREAS WILL BE LEFT EXPOSED OVER THE WINTER SEASON.
8. THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO COMMENCEMENT OF GRADING. LOCATION OF THE ENTRANCE MAY BE ADJUSTED BY THE CONTRACTOR TO FACILITATE GRADING OPERATIONS. ALL CONSTRUCTION TRAFFIC ENTERING THE PAVED ROAD MUST CROSS THE STABILIZED CONSTRUCTION ENTRANCE. THE STABILIZED CONSTRUCTION ENTRANCE SHALL REMAIN IN PLACE UNTIL THE ROAD BASE ROCK COURSE IS COMPLETED.
9. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR AS NECESSARY.
10. CONTRACTOR SHALL PLACE AROUND ALL NEW DRAINAGE STRUCTURE OPENINGS IMMEDIATELY AFTER THE STRUCTURE OPENING IS CONSTRUCTED. THESE SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.
11. CONTRACTOR SHALL IMPLEMENT HOUSEKEEPING PRACTICES AS FOLLOWS:
    - A. SOLID WASTE MANAGEMENT: PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR REMOVAL AND DISPOSAL. CLEAR SITE OF TRASH INCLUDING ORGANIC DEBRIS, PACKAGING MATERIALS, SCRAP OR SURPLUS BUILDING MATERIALS AND DOMESTIC WASTE DAILY.
    - B. MATERIAL DELIVERY AND STORAGE: PROVIDE A DESIGNATED MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. STORE MATERIAL ON PALLETS AND PROVIDE COVERING FOR SOLUBLE MATERIALS. RELOCATE STORAGE AREA INTO BUILDING SHELL WHEN POSSIBLE. INSPECT AREA WEEKLY.
    - C. CONCRETE WASTE: PROVIDE A DESIGNATED AREA FOR A TEMPORARY PIT TO BE USED FOR CONCRETE TRUCK WASH-OUT. DISPOSE OF HARDENED CONCRETE OFFSITE. AT NO TIME SHALL A CONCRETE TRUCK DUMP ITS WASTE AND CLEAN ITS TRUCK INTO THE CITY STORM DRAINS VIA CURB AND GUTTER. INSPECT DAILY TO CONTROL RUNOFF, AND WEEKLY FOR REMOVAL OF HARDENED CONCRETE.
    - D. PAINT AND PAINTING SUPPLIES: PROVIDE INSTRUCTION TO EMPLOYEES AND SUBCONTRACTORS REGARDING REDUCTION OF POLLUTANTS INCLUDING MATERIAL STORAGE, USE, AND CLEAN UP. INSPECT SITE WEEKLY FOR EVIDENCE OF IMPROPER DISPOSAL.
    - E. VEHICLE FUELING, MAINTENANCE AND CLEANING: PROVIDE A DESIGNATED FUELING AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. DO NOT ALLOW MOBILE FUELING OF EQUIPMENT. PROVIDE EQUIPMENT WITH DRIP PANS. RESTRICT ONSITE MAINTENANCE AND CLEANING OF EQUIPMENT TO A MINIMUM. INSPECT AREA WEEKLY.
    - F. HAZARDOUS WASTE MANAGEMENT: PREVENT THE DISCHARGE OF POLLUTANTS FROM HAZARDOUS WASTES TO THE DRAINAGE SYSTEM THROUGH PROPER MATERIAL USE, WASTE DISPOSAL AND TRAINING OF EMPLOYEES. HAZARDOUS WASTE PRODUCTS COMMONLY FOUND ON-SITE INCLUDE BUT ARE NOT LIMITED TO PAINTS & SOLVENTS, PETROLEUM PRODUCTS, FERTILIZERS, HERBICIDES & PESTICIDES, SOIL STABILIZATION PRODUCTS, ASPHALT PRODUCTS AND CONCRETE CURING PRODUCTS.

CONSTRUCTION NOTES:

1. PLACE FIBER ROLL AT TOP BACK OF WALK AND TOP BACK OF CURB PER CITY OF SACRAMENTO STD DWG Q-40, SHEET C9.
2. INSTALL STORM DRAIN SEDIMENT BARRIER AND INLET FILTER PER CITY OF SACRAMENTO STD DWG Q-20 AND Q-30, SHEET C9.
3. INSTALL TEMPORARY STABILIZED CONSTRUCTION ENTRANCE PER CITY OF SACRAMENTO STD DWG Q-10, SHEET C9.
4. CONCRETE WASHOUT PER DETAIL 2, SEE SHEET C9.- REF. CASQA BMP WM-8.
5. PLACE PORTABLE TOILET FOR USE DURING CONSTRUCTION. ANCHOR TO PREVENT OVERTURNING - REF. CASQA BMP WM-9.
6. INSTALL TEMPORARY 6' HIGH CHAINLINK SECURITY FENCE.
7. STAGING AREA, MATERIAL STORAGE, TEMPORARY STOCKPILE STORAGE AREA, FUELING AREA.
8. PLACE TEMPORARY CULVERT EROSION SEDIMENT CHECK DAM PER DETAIL 1, ON SHEET C9.

NOTE:

THE CONTRACTOR SHALL COMPLY WITH THE CITY OF SACRAMENTO ADMINISTRATIVE AND TECHNICAL MANUAL FOR GRADING/EROSION AND SEDIMENT CONTROL. CONTRACTOR SHALL HAVE ALL APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES IN PLACE FOR THE WINTER MONTHS PRIOR TO OCTOBER 1ST AND MUST ENSURE THAT THE CONSTRUCTION SITE IS PREPARED FOR THE ONSET OF ANY STORM.

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ON-SITE IMPROVEMENT PLANS FOR
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SACRAMENTO, CA 95838
APN: 237-0200-092

EROSION AND SEDIMENT CONTROL PLAN

Sheet
C8
10 of 14
6/12/2023

CWE PROJECT NO. 21-188 – 1905 NORTH AVENUE, SACRAMENTO, CA 95838

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EROSION AND SEDIMENT CONTROL NOTES:

1. THE CONTRACTOR SHALL FOLLOW ALL JURISDICTIONAL GUIDELINES FOR GRADING AND THE EROSION AND SEDIMENT CONTROL MEASURES SHOWN OR STATED ON THESE PLANS.
2. CONTRACTOR MUST ENSURE THAT THE CONSTRUCTION SITE IS PREPARED PRIOR TO THE ONSET OF ANY STORM. CONTRACTOR SHALL HAVE ALL EROSION AND SEDIMENT CONTROL MEASURES IN PLACE FOR THE WINTER MONTHS PRIOR TO OCTOBER 1.
3. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL DISTURBED AREAS ARE STABILIZED. CHANGES TO THIS EROSION AND SEDIMENT CONTROL PLAN SHALL BE MADE TO MEET FIELD CONDITIONS ONLY WITH THE APPROVAL OF OR AT THE DIRECTION OF A REPRESENTATIVE OF THE DEPARTMENT OF UTILITIES.
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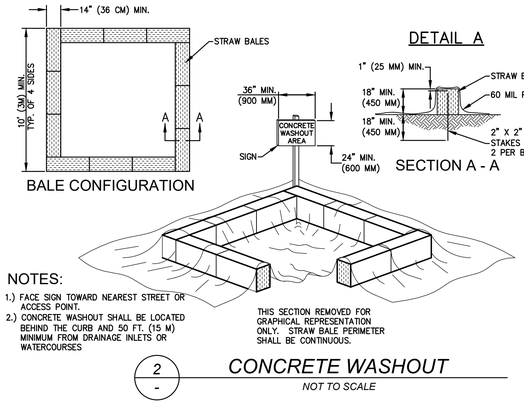
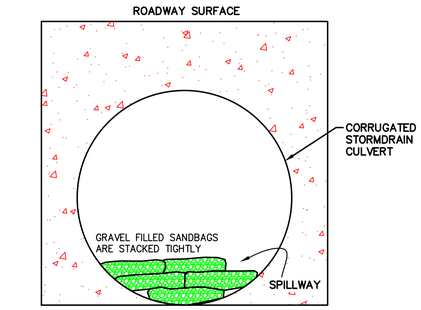
5. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED BEFORE AND AFTER ALL STORMS TO ENSURE MEASURES ARE FUNCTIONING PROPERLY.
6. CONTRACTOR SHALL MAINTAIN A LOG AT THE SITE OF ALL INSPECTIONS OR MAINTENANCE OF BMPS, AS WELL AS, ANY CORRECTIVE CHANGES TO THE BMPS OR EROSION AND SEDIMENT CONTROL PLAN.
7. IN AREAS WHERE SOIL IS EXPOSED, PROMPT REPLANTING WITH NATIVE COMPATIBLE, DROUGHT-RESISTANT VEGETATION SHALL BE PERFORMED. NO AREAS WILL BE LEFT EXPOSED OVER THE WINTER SEASON.
8. THE CONTRACTOR SHALL INSTALL THE STABILIZED CONSTRUCTION ENTRANCE PRIOR TO COMMENCEMENT OF GRADING. LOCATION OF THE ENTRANCE MAY BE ADJUSTED BY THE CONTRACTOR TO FACILITATE GRADING OPERATIONS. ALL CONSTRUCTION TRAFFIC ENTERING THE PAVED ROAD MUST CROSS THE STABILIZED CONSTRUCTION ENTRANCE. THE STABILIZED CONSTRUCTION ENTRANCE SHALL REMAIN IN PLACE UNTIL THE ROAD BASE ROCK COURSE IS COMPLETED.
9. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE SWEPT AT THE END OF EACH WORKING DAY OR AS NECESSARY.
10. CONTRACTOR SHALL PLACE GRAVEL BAG BARRIERS AROUND ALL NEW DRAINAGE STRUCTURE OPENINGS IMMEDIATELY AFTER THE STRUCTURE OPENING IS CONSTRUCTED. THESE GRAVEL BAG BARRIERS SHALL BE MAINTAINED AND REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.
11. CONTRACTOR SHALL FOLLOW DUST CONTROL METHODS INCLUDING:
    A. WATERING THE SOIL OF THE SITE AND THE ADJACENT STREETS BEING USED IN CONNECTION WITH SOIL DISTURBANCE OPERATIONS ON THE SITE.
    B. COMPLETELY COVER GRAVEL OR ROCK LANDSCAPING UNTIL STABILIZED.
    D. WATER GRASSES AND LANDSCAPING UNTIL STABILIZED.
12. CONTRACTOR SHALL IMPLEMENT HOUSEKEEPING PRACTICES AS FOLLOWS:
    A. SOLID WASTE MANAGEMENT:
    PROVIDE DESIGNATED WASTE COLLECTION AREAS AND CONTAINERS. ARRANGE FOR REGULAR REMOVAL AND DISPOSAL. CLEAR SITE OF TRASH INCLUDING ORGANIC DEBRIS, PACKAGING MATERIALS, SCRAP OR SURPLUS BUILDING MATERIALS AND DOMESTIC WASTE DAILY.
    B. MATERIAL DELIVERY AND STORAGE:
    PROVIDE A DESIGNATED MATERIAL STORAGE AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. STORE MATERIAL ON PALLETS AND PROVIDE COVERING FOR SOLUBLE MATERIALS. RELOCATE STORAGE AREA INTO BUILDING SHELL WHEN POSSIBLE. INSPECT AREA WEEKLY.
    C. CONCRETE WASTE:
    PROVIDE A DESIGNATED AREA FOR A TEMPORARY PIT TO BE USED FOR CONCRETE TRUCK WASH-OUT. DISPOSE OF HARDENED CONCRETE OFFSITE. AT NO TIME SHALL A CONCRETE TRUCK DUMP ITS WASTE AND CLEAN ITS TRUCK INTO THE CITY STORM DRAINS VIA CURB AND GUTTER. INSPECT DAILY TO CONTROL RUNOFF, AND WEEKLY FOR REMOVAL OF HARDENED CONCRETE.
    D. PAINT AND PAINTING SUPPLIES:
    PROVIDE INSTRUCTION TO EMPLOYEES AND SUBCONTRACTORS REGARDING REDUCTION OF POLLUTANTS INCLUDING MATERIAL STORAGE, USE, AND CLEAN UP. INSPECT SITE WEEKLY FOR EVIDENCE OF IMPROPER DISPOSAL.
    E. VEHICLE FUELING, MAINTENANCE AND CLEANING:
    PROVIDE A DESIGNATED FUELING AREA WITH SECONDARY CONTAINMENT SUCH AS BERMING. DO NOT ALLOW MOBILE FUELING OF EQUIPMENT. PROVIDE EQUIPMENT WITH DRIP PANS. RESTRICT ON-SITE MAINTENANCE AND CLEANING OF EQUIPMENT TO A MINIMUM. INSPECT AREA WEEKLY.
    F. HAZARDOUS WASTE MANAGEMENT:
    PREVENT THE DISCHARGE OF POLLUTANTS FROM HAZARDOUS WASTES TO THE DRAINAGE SYSTEM THROUGH PROPER MATERIAL USE, WASTE DISPOSAL AND TRAINING OF EMPLOYEES. HAZARDOUS WASTE PRODUCTS COMMONLY FOUND ON-SITE INCLUDE BUT ARE NOT LIMITED TO PAINTS & SOLVENTS, PETROLEUM PRODUCTS, FERTILIZERS, HERBICIDES & PESTICIDES, SOIL STABILIZATION STABILIZATION PRODUCTS, ASPHALT PRODUCTS AND CONCRETE CURING PRODUCTS.

PHASE OF CONSTRUCTION	EROSION AND SEDIMENT CONTROL MEASURES											
	(WET SEASON)				(WET AND DRY SEASON)							
	HYDRO-SEEDING	STRAW MULCHING & TACTIFIER	PRESERVATION OF EXISTING VEGETATION	SOIL BINDERS	FIBER ROLLS	OUTLET PROTECTION	STORM DRAIN INLET PROTECTION	DEWATERING	STABILIZED CONSTRUCTION ENTRANCE	MATERIAL & WASTE DISPOSAL LOCATION	CONCRETE WASHOUT	DUST CONTROL	SEDIMENT TRAP
PRE-GRADING			●		●		●		●	●		●	●
CUT AND FILL ACTIVITIES	●	●		●				●				●	●
UNDERGROUND WORK												●	
STORM DRAIN IMPROVEMENTS						●					●	●	
CURB & GUTTER							●					●	
STREET IMPROVEMENTS					●							●	
POST CONSTRUCTION	●	●	●										

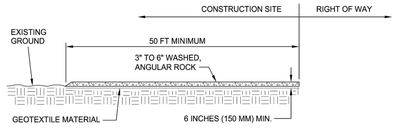
NOTES:
1. ALL EROSION BMPs SHALL BE IN PLACE PRIOR TO STORM EVENTS AND IN ACCORDANCE WITH THE LATEST EDITION OF SECTION II OF THE IMPROVEMENT STANDARDS AND THE CALIFORNIA STORM WATER HANDBOOK.
2. MAINTAIN BMP'S AS NECESSARY.



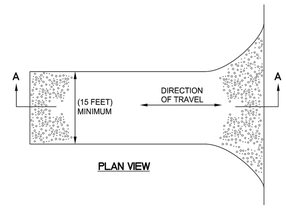
2 - CONCRETE WASHOUT
NOT TO SCALE



1 - CULVERT CHECK DAM DETAIL
NOT TO SCALE



SECTION A-A



PLAN VIEW

NOTES:
1. STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED OF 3" TO 6" WASHED, ANGULAR ROCK, MATERIAL SHALL BE PLACED TO A MINIMUM THICKNESS OF 6 INCHES.
2. LENGTH OF ENTRANCE SHALL BE A MINIMUM OF 50 FEET. WIDTH SHALL BE A MIN. OF 15 FT OR GREATER IF NECESSARY TO COVER ALL VEHICULAR INGRESS AND EGRESS. PROVIDE AMPLE TURNING RADII.
3. THE ENTRANCE SHALL BE KEPT IN GOOD CONDITION BY OCCASIONAL TOP DRESSING WITH MATERIAL AS SPECIFIED IN NOTE 1.
4. ACCESSES SHALL BE INSPECTED WEEKLY DURING PERIODS OF HEAVY USAGE, MONTHLY DURING NORMAL USAGE, AND AFTER EACH RAINFALL, WITH MAINTENANCE PROVIDED AS NECESSARY. PERIODIC TOP DRESSING SHALL BE DONE AS NEEDED.

REV.	DATE	DESCRIPTION
1		
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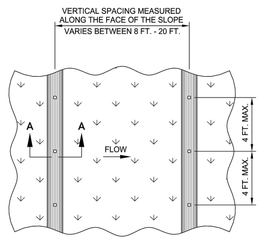
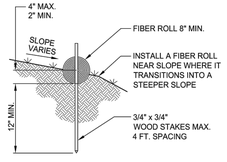
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

STABILIZED CONSTRUCTION ENTRANCE

APPR'D BY: DRB NO SCALE
DATE: MAY 2007 DWG. NO. O - 10



TYPICAL FIBER ROLL INSTALLATION



SECTION A - A

NOTES:
1.- INSTALL FIBER ROLLS IN A ROW ALONG A LEVEL CONTOUR.
2.- AT ENDS OF A ROW TURN THE LAST TWO FEET UP SLOPE SLIGHTLY.
3.- FIBER ROLLS SHALL BE BUTTED TIGHTLY AT THE JOINTS.
4.- DO NOT OVERLAP JOINTS.
5.- FIBER ROLLS SHALL BE INSPECTED WEEKLY AND AFTER STORMS, AND REPAINTED OR REPLACED AS NEEDED.

REV.	DATE	DESCRIPTION
1		
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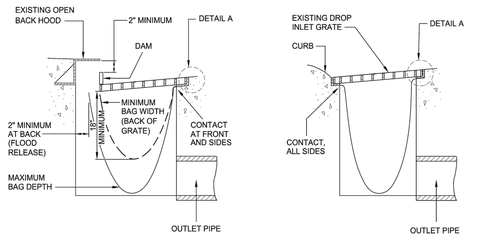
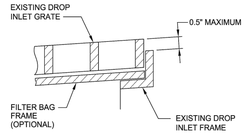
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

FIBER ROLLS

APPR'D BY: DRB NO SCALE
DATE: MAY 2007 DWG. NO. O - 40



NOTES:
1.- THE MAXIMUM DRAINAGE AREA PER FILTER SHALL BE NO MORE THAN 2 ACRES.
2.- THE FILTER BAG SHALL BE MANUFACTURED FROM UV RESISTANT POLYPROPYLENE, NYLON, POLYESTER, OR ETHYLENE FABRIC WITH A MINIMUM TENSILE STRENGTH OF 50 LBS PER LINEAL FOOT. AN EQUIVALENT OPENING SIZE NOT GREATER THAN 20 SIEVE AND WITH A MINIMUM FLOW RATE OF 40 GALLONS/MINUTE/SQ FT.
3.- THE FILTER BAG MAY BE SUSPENDED FROM OR HELD IN PLACE BY THE EXISTING INLET GRATE (OR OTHER APPROVED METHOD), PROVIDING NO MODIFICATION OR DAMAGE SHALL BE DONE TO THE INLET GRATE OR FRAME. THE INLET GRATE SHALL NOT BE CAUSED TO REST MORE THAN 0.5" ABOVE THE INLET FRAME (SEE DETAIL A).
4.- THE FILTER BAG MAY EXTEND TO THE BOTTOM OF THE INLET BOX PROVIDED THE OUTLET PIPE IS UNOBSTRUCTED.
5.- FLOWS SHALL NOT BE ALLOWED TO BYPASS THE BAG. THE BAG OR ITS FRAME SHALL CATCH FLOWS AT ALL SIDES OF THE INLET, EXCEPT AS SHOWN FOR FLOOD RELEASE.
6.- INLET FILTER BAGS SHALL BE INSPECTED WEEKLY AND AFTER EACH RAINFALL DURING THE WET SEASON AND MONTHLY DURING THE DRY SEASON. SEDIMENT AND DEBRIS SHALL BE REMOVED BEFORE ACCUMULATIONS HAVE REACHED ONE THIRD THE DEPTH OF THE BAG. BAGS SHALL BE REPAIRED OR REPLACED AS SOON AS DAMAGE OCCURS.
7.- THIS DETAIL IS SCHEMATIC AND MUST BE ADJUSTED FOR DIFFERENT DI TYPES.



DETAIL A

REV.	DATE	DESCRIPTION
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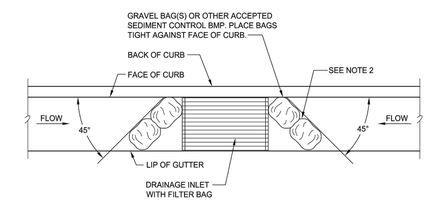
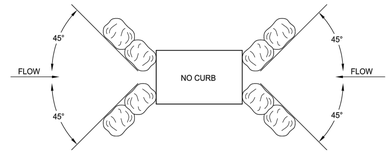
CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

STORM DRAIN INLET FILTER BAG

APPR'D BY: DRB NO SCALE
DATE: MAY 2007 DWG. NO. O - 30



PLAN VIEW



NOTES:
1.- SEDIMENT TRAPPED UPSTREAM OF SEDIMENT CONTROL BMP SHALL BE REMOVED WEEKLY AND PRIOR TO A RAINFALL EVENT.
2.- PLACE BMP'S TIGHTLY TOGETHER AT JOINTS TO PREVENT OR MINIMIZE SEEPAGE AT JOINTS.
3.- INLET SEDIMENT CONTROL MUST BE INSPECTED WEEKLY AND AFTER EACH STORM, AND REPAIRED OR REPLACED AS NEEDED.
4.- INLET SEDIMENT CONTROL IS REQUIRED FOR ALL DI's IN ADDITION TO A STORM DRAIN INLET FILTER BAG.

REV.	DATE	DESCRIPTION
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CITY OF SACRAMENTO
DEPARTMENT OF UTILITIES

INLET SEDIMENT CONTROL

APPR'D BY: DRB NO SCALE
DATE: MAY 2007 DWG. NO. O - 20

NO.	BY	DATE	APPR'D

REVISION

CHECK: RFE / RFE
BY: DESIGN MJW / DRAWN DCJ / QUANT.
ORIGINAL SCALE IS IN INCHES 0 1 2

REGISTERED PROFESSIONAL ENGINEER SHAWN B. SOMERS No. C 80625 Exp. 3-31-25 6/14/2023 CIVIL STATE OF CALIFORNIA

CWE
2260 Douglas Blvd. Suite 160, Roseville, CA 95661
Ph: 916-772-1600 | www.corecorp.com

PROPERTY OWNER / DEVELOPER
NERRADSCALI CORPORATION
3960 KINGSBARNS DRIVE
ROSEVILLE, CA 95747
CONTACT: DARREN BROWN
PH: (916) 300-7962
EMAIL: DARRENBBROWN@COMCAST.NET

ON-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION
SACRAMENTO, CA 95838
APN: 237-0200-092

EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

Sheet
C9
11 of 14
6/12/2023

CWE PROJECT NO. 21-188 – 1905 NORTH AVENUE, SACRAMENTO, CA 95838

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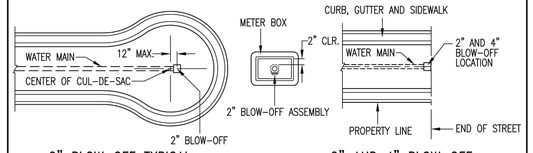
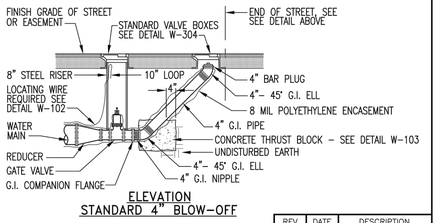


2" BLOW-OFF TYPICAL INSTALLATION IN CUL-DE-SAC PLAN

ELEVATION STANDARD 2" BLOW-OFF

2" AND 4" BLOW-OFF TYPICAL FOR END OF STREET



ELEVATION STANDARD 4" BLOW-OFF

REV.	DATE	DESCRIPTION

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES	STANDARD 2-INCH AND 4-INCH BLOW-OFF	APPR'D BY: DBT NO SCALE DATE: MAY 2007 DWG. NO. W - 301

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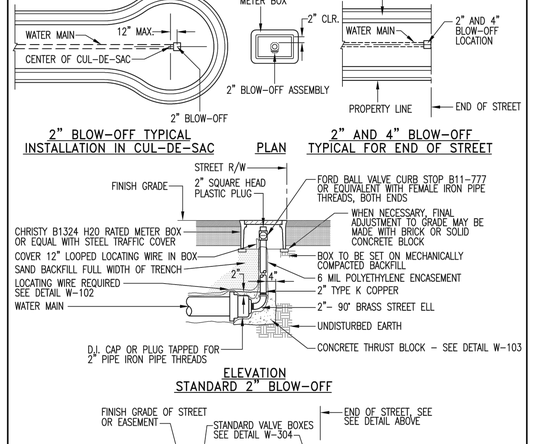
8	NTS	2" BLOW-OFF VALVE



PLACEMENT OF FIRE HYDRANTS

ELEVATION

NOTES

1. BODY OF ALL FIRE HYDRANTS SHALL BE PAINTED WITH TWO COATS OF RUST-OLEUM PROFESSIONAL OIL BASED ENAMEL ALUMINUM #7715 COLOR OR EQUAL.
2. TOP (BONNET OR DOME) OF ALL HYDRANTS SHALL BE PAINTED TO THE FOLLOWING COLOR CODE ACCORDING TO THE SIZE OF THE WATER MAIN THE HYDRANTS ARE CONNECTED TO:
   ORANGE: FOR 4" OR SMALLER MAINS
   RED: FOR 6" MAINS
   YELLOW: FOR 8"-10" MAINS
   GREEN: FOR 12" AND LARGER MAINS
3. RAISED PAVEMENT MARKERS SHALL BE PLACED FOR EACH HYDRANT INSTALLATION IN ACCORDANCE WITH SECTION 32-4 OF THESE STANDARD SPECIFICATIONS.
4. THE BLUE REFLECTORS SHALL BE PLACED ON THE HYDRANT SIDE OF THE STREET 5" FROM THE STREET CENTERLINE IN DIRECTION OF THE HYDRANT WITH REFLECTOR SIDES FACING TRAFFIC. PROVIDE TWO MARKERS FOR HYDRANTS INSTALLED AT MAJOR STREET INTERSECTIONS.
5. ONLY ONE (1) 6" OR 12" EXTENSION MAY BE USED FOR FIRE HYDRANT ADJUSTMENT TO GRADE. ALL OTHER ADDITIONAL ADJUSTMENTS MAY BE MADE WITH THE USE OF 45° ELBOWS ON THE HYDRANT LEAD.
6. OPERATING NUT AND OUTLET NOZZLE CAP NUTS SHALL BE PENTAGON IN SHAPE.
7. FIRE HYDRANTS ARE TO BE INSTALLED SO THE BURY LINE IS AT FINISHED GRADE. IF THIS IS NOT POSSIBLE DUE TO EXISTING UTILITIES THEN THE FOLLOWING VARIANCE MAY BE ALLOWED. 2" MINIMUM AND 5" MAXIMUM, MEASURED FROM THE BOTTOM OF THE HYDRANT FLANGE TO FINISHED GRADE.

REV.	DATE	DESCRIPTION

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES	FIRE HYDRANT INSTALLATIONS	APPR'D BY: NO SCALE DATE: SEPT 6, 2017 DWG. NO. W-201

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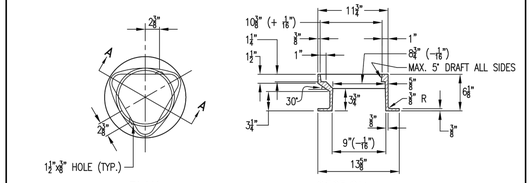
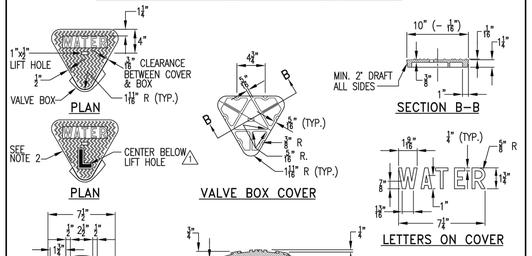
4	NTS	FIRE HYDRANT INSTALLATIONS

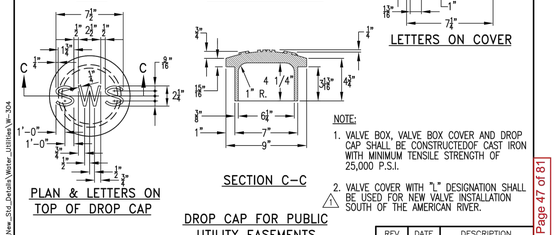


PLAN

VALVE BOX FOR STREETS AND PAVED SURFACES

SECTION A-A





PLAN & LETTERS ON TOP OF DROP CAP

SECTION C-C

NOTE:

1. VALVE BOX, VALVE BOX COVER AND DROP CAP SHALL BE CONSTRUCTEDOF CAST IRON WITH MINIMUM TENSILE STRENGTH OF 25,000 P.S.I.
2. VALVE COVER WITH "L" DESIGNATION SHALL BE USED FOR NEW VALVE INSTALLATION SOUTH OF THE AMERICAN RIVER.

DROP CAP FOR PUBLIC UTILITY EASEMENTS

REV.	DATE	DESCRIPTION
1	04-20-12	New Open Left

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES	STANDARD VALVE BOX AND DROP CAP	APPR'D BY: DBT NO SCALE DATE: MAY 2007 DWG. NO. W-304

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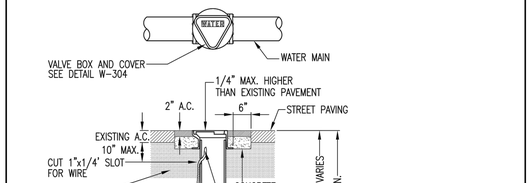
Addendum #2, Page 47 of 81

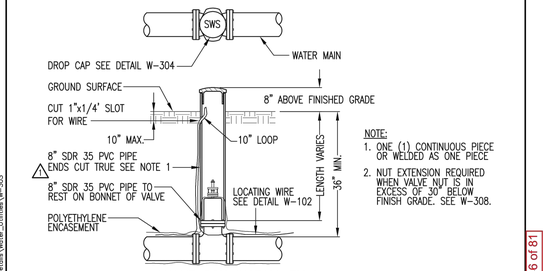
7	NTS	VALVE BOX AND DROP CAP DETAIL



NOTE:

1. ONE (1) CONTINUOUS PIECE OR WELDED AS ONE PIECE
2. NUT EXTENSION REQUIRED WHEN VALVE NUT IS IN EXCESS OF 30" BELOW FINISH GRADE. SEE W-308.

VALVE BOX INSTALLATION IN CITY STREETS ALLEYS AND PAVED UTILITY EASEMENTS



NOTE:

1. ONE (1) CONTINUOUS PIECE OR WELDED AS ONE PIECE
2. NUT EXTENSION REQUIRED WHEN VALVE NUT IS IN EXCESS OF 30" BELOW FINISH GRADE. SEE W-308.

VALVE BOX INSTALLATION IN PUBLIC UTILITY EASEMENTS

REV.	DATE	DESCRIPTION
1	11/29/11	Material Change

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES	STANDARD VALVE BOX INSTALLATION FOR CITY STREETS, ALLEY & EASEMENTS	APPR'D BY: DBT NO SCALE DATE: MAY 2007 DWG. NO. W-303

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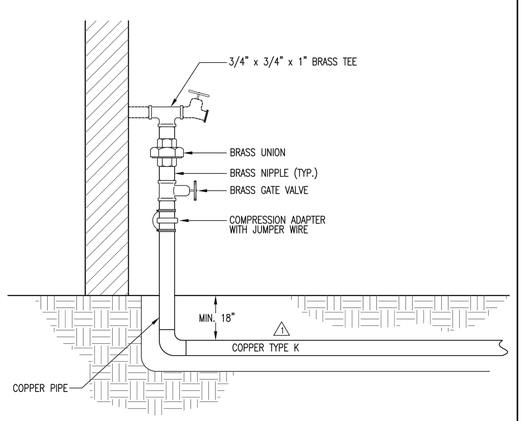
Addendum #2, Page 46 of 81

6	NTS	VALVE BOX INSTALLATION DETAIL



GENERAL NOTES

1. WATER SERVICE PIPE SHALL BE 1-INCH IN DIAMETER UP TO ABOVE GROUND TEE.
2. WHENEVER COPPER WATER SERVICE PIPE IS IN DIRECT CONTACT WITH CONCRETE, THE CONTRACTOR SHALL WRAP COPPER PIPE IN 35 MIL POLYKIN OR EQUAL, OR PLACE IN CASING.
3. WATER SERVICE PIPE MAY BE PLACED IN AN EXCAVATED TRENCH AND BACKFILLED, OR DIRECTIONALLY DRILLED.
4. PIPE ALIGNMENT SHALL NOT PASS UNDER ANY STRUCTURE.
5. WATER SERVICES AND THEIR INSTALLATION SHALL MEET APPLICABLE REQUIREMENTS OF SECTION 10 THRU 38 OF THESE SPECIFICATIONS.
6. TO TRANSITION FROM GALVANIZED PIPE TO COPPER PIPE, PLACE A BRASS UNION W/BRASS GATE VALVE BETWEEN GALVANIZED PIPE AND COPPER PIPE.

REV.	DATE	DESCRIPTION
1	03-22-12	Type K Only

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES	WATER SERVICE CONNECTION AT HOSE BIBB	APPR'D BY: DBT NO SCALE DATE: MAY 2007 DWG. NO. W-406

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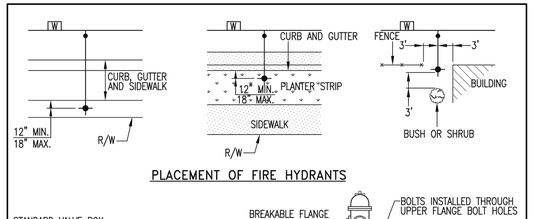
Addendum #2, Page 53 of 81

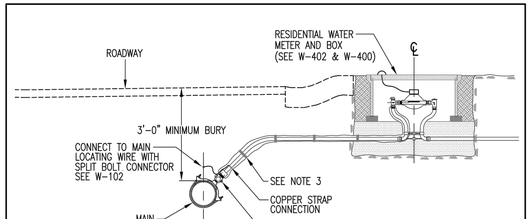
5	NTS	WATER SERVICE CONNECTION



COPPER SERVICE INSTALLATION

NOTES:

1. COPPER TUBING AND METER SETTER TO BE SAME SIZE AS CORPORATION STOP.
2. SEE STANDARD DRAWING W-403 FOR DETAIL OF CONNECTION TO MAIN.
3. 6 MIL POLYETHYLENE WRAP WITH 10 MIL TAPE @ 5' INTERVALS SHALL BE REQUIRED.



HDPE SERVICE INSTALLATION

NOTES:

1. COPPER TUBING SIZE HDPE PIPE AND METER SETTER TO BE SAME SIZE AS CORPORATION STOP.
2. SEE STANDARD DRAWING W-403 FOR DETAIL OF CONNECTION TO MAIN.
3. LOCATING WIRE TERMINATING IN METER BOX SHALL EXTEND INSIDE BOX A MINIMUM OF 10".
4. CONNECT LOCATING WIRE TO HDPE USING 10 MIL TAPE @ 3' INTERVALS.

REV.	DATE	DESCRIPTION

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES	1" RES. WATER SERVICES	APPR'D BY: NO SCALE DATE: SEPT 6, 2017 DWG. NO. W-405

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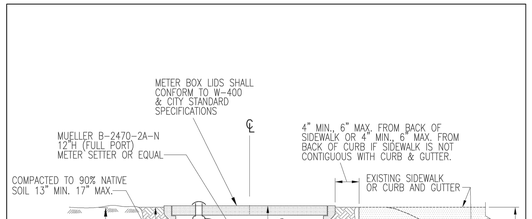
3	NTS	1" RESIDENTIAL WATER SERVICE DETAIL



NOTE:

1. CITY FORCES WILL FURNISH AND INSTALL WATER METER AFTER PLUMBING PERMIT HAS BEEN ISSUED, AND METER FEES HAVE BEEN PAID. PROPERTY WILL NOT PASS FINAL INSPECTION WITHOUT WATER METER.
2. 6 MIL POLYETHYLENE WRAP WITH 10 MIL TAPE IS REQUIRED ON COPPER SERVICE (ONLY).
3. FOR STREETS INSTALLATIONS, METER BOXES SHALL BE CONSTRUCTED OF AN H20 TRAFFIC RATED (PER AASHTO-H20 LOAD TEST) CONCRETE MATERIAL AND SHALL MEET THE CAL TRANS No. 5T OR 6T STATE SPECIFICATION. LIDS SHALL BE H20 RATED. ALL LIDS SHALL BE PER CITY STD W-400.
4. ALLEYS AND UNIMPROVED STREET SHALL HAVE A TIER 22 BOX AND COVER FOR ALL 1" TO 2" METERS.

REV.	DATE	DESCRIPTION

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES	INSTALLATION OF RESIDENTIAL WATER METER SETTER & BOX	APPR'D BY: NO SCALE DATE: JULY 28, 2017 DWG. NO. W-402

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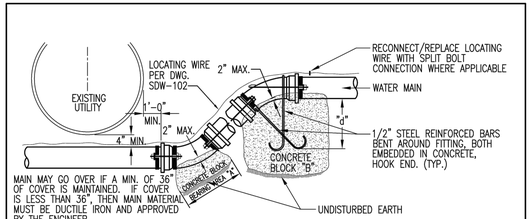
2	NTS	WATER METER SETTER & BOX DETAIL



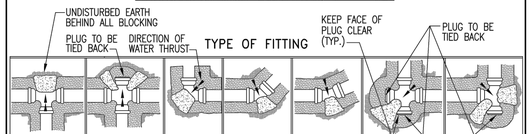
MAIN MAY GO OVER IF A MIN. OF 36" OF COVER IS MAINTAINED. IF COVER IS LESS THAN 36", THEN MAIN MATERIAL MUST BE DUCTILE IRON AND APPROVED BY THE ENGINEER.

SIZE IN PIPE	6"	8"	12"
MINIMUM DEPTH "d"	6"	8"	20"
YDS. CONCRETE NECESSARY TO PROVIDE WEIGHT, BLOCK "B"	0.8	1-1/3	3
BEARING AREA "A" SQ. FT.	2	3	6.5

NOTE:

1. RESTRAINED JOINTS MAY BE USED IN LIEU OF CONCRETE BLOCKING WITH THE APPROVAL OF THE ENGINEER.
2. FIRE HYDRANTS MUST BE INSTALLED WITH A THRUST BLOCK. RESTRAINED JOINTS ARE NOT ALLOWED.

CHANGES IN MAIN ELEVATION, 6" - 12"



TEE OR DEAD END		CROSS AND PLUG		90° ELBOW		45° ELBOW		22 1/2° ELBOW		CROSS AND PLUGS		TEE AND PLUG	
MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA	MAIN SIZE	BEARING AREA
6"	2	6"	3	6"	3	6"	2	6"	1	6"	3	6"	3
8"	3.5	8"	5	8"	5	8"	3	8"	1.5	8"	5	8"	5
12"	8	12"	11.5	12"	11.5	12"	5	12"	3.5	12"	11.5	12"	11.5

NOTES:

1. ABOVE BEARING AREAS BASED ON 150 PSI SERVICE PRESSURE AND 2000 PSF SOIL BEARING CAPACITY. WHERE SOIL CONDITIONS REQUIRE ADJUSTMENT OF ALLOWABLE BEARING PRESSURE, IN THE OPINION OF THE ENGINEER, REQUIRED BLOCKING AREAS WILL BE ADJUSTED.
2. USE CLASS "D" CONCRETE FOR BLOCKING. SEE STANDARD SPECS.
3. VERTICAL CHANGES IN DIRECTION REQUIRE BLOCKING AS SHOWN ABOVE.
4. CONCRETE THRUST BLOCKING SHALL NOT COMPLETELY INUNDATE FITTING.
5. RESTRAINED JOINTS MAY BE USED IN LIEU OF CONCRETE BLOCKING WITH THE APPROVAL OF THE ENGINEER.
6. MAINTAIN 4" MINIMUM CLEARANCE BETWEEN NEW MAIN AND EXISTING UTILITY EXCEPT FOR GAS MAINTAIN 1'-0" CLEARANCE SEE W-106.

REV.	DATE	DESCRIPTION

CITY OF SACRAMENTO DEPARTMENT OF UTILITIES	CHANGES IN MAIN ELEVATION & THRUST BLOCKING FOR WATER MAINS	APPR'D BY: NO SCALE DATE: SEPT 6, 2017 DWG. NO. W-103

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1	NTS	THRUST BLOCKING DETAIL

NO.	DATE	BY	REVISION	CHECK	BY	APPR'D
					DESIGN	RFE	
					DRAWN	MJW	
					QUANT.	DCJ	
						RFE	

ORIGINAL SCALE IS IN INCHES 0 1 2

REVIEWED PROFESSIONAL ENGINEER SHAWN B. SOARES No. C-80625 Exp. 3-31-25 6/14/2023 CIVIL STATE OF CALIFORNIA

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ON-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION
SACRAMENTO, CA 95838
APN: 237-0200-092

CONSTRUCTION DETAILS 1

Sheet
C10.1
12 of 14
6/12/2023

CWE PROJECT NO. 21-188 - 1905 NORTH AVENUE, SACRAMENTO, CA 95838

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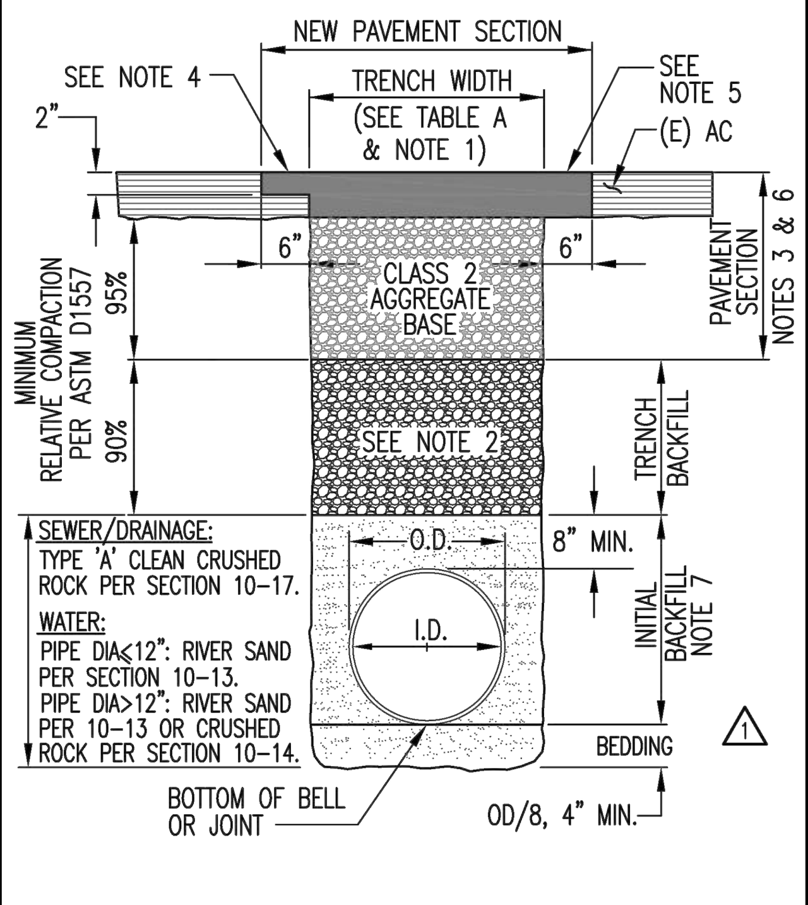

TYPICAL TRENCH SECTION

TABLE A			
TRENCH WIDTHS			
PIPE TYPE	PIPE I.D.	MINIMUM DIMENSION	MAXIMUM DIMENSION (4)
RIGID (1)	≤12"	PIPE O.D. + 16"	PIPE O.D. + 24"
	>12"	PIPE O.D. + 20"	PIPE O.D. + 36"
FLEXIBLE (2)	ALL	PER ASTM D2321 (3) OR THE PIPE MANUFACTURER'S RECOMMENDATIONS, WHICHEVER IS GREATER.	

(1) RIGID PIPE = RCP, VCP & DIP.
(2) FLEXIBLE PIPE = ALL PIPE OTHER THAN RIGID PIPE. (1)
(3) ASTM D2321 STATES THAT THE MINIMUM TRENCH WIDTH SHALL BE EQUAL TO THE PIPE O.D. PLUS 16" OR THE PIPE O.D. TIMES 1.25 PLUS 12", WHICHEVER IS GREATER.
(4) IF THE MAXIMUM DIMENSION AT THE TOP OF THE PIPE IS EXCEEDED, CONTRACTOR SHALL PROVIDE STRONGER PIPE OR IMPROVED BEDDING AND BACKFILL CONDITIONS, AS APPROVED BY THE ENGINEER, TO MEET THE NEW LOADING.

NOTES: (1)

1. EXCAVATION, BACKFILL AND RE-PAVING OF TRENCHES SHALL CONFORM TO THE STANDARD SPECIFICATIONS UNLESS OTHERWISE INDICATED BY THE PLANS, PERMIT, SPECIAL PROVISIONS, OR THE ENGINEER.
2. TRENCH BACKFILL SHALL CONSIST OF CLASS 2 AGGREGATE BASE (AB) OR JOB EXCAVATED, NATIVE SOIL. NO ADDITIONAL COMPENSATION SHALL BE PAID FOR STOCKPILING, DRYING, WETTING OR PROCESSING THE NATIVE SOIL OR AB TO MEET THE MINIMUM STABILITY AND RELATIVE COMPACTION CRITERIA.
3. UNLESS OTHERWISE INDICATED IN THE SPECIAL PROVISIONS, THE NEW PERMANENT PAVEMENT SHALL CONFORM TO THE TYPE AND THICKNESS OF THE PAVEMENT REMOVED. IN NO CASE SHALL THE NEW PAVEMENT SECTION BE LESS THAN FOUR INCHES (4") OF AC ON TWELVE INCHES (12") OF CLASS 2 AGGREGATE BASE (AB).
4. EXISTING AC > 4" THICK: GRIND EXISTING AC 2" DEEP AND 6" WIDER THAN TRENCH ON BOTH SIDES. PLACE NEW AC.
5. EXISTING AC ≤ 4" THICK: SAW CUT AND PLACE NEW AC 6" WIDER THAN TRENCH AS SHOWN ON BOTH SIDES.
6. NON-PAVEMENT AREAS: IN NON-PAVEMENT AREAS, THE PAVEMENT SECTION SHALL BE REPLACED WITH JOB EXCAVATED NATIVE SOIL OR OTHER APPROVED BACKFILL COMPACTED TO AT LEAST 90% RELATIVE COMPACTION PER ASTM D1557.
7. SHOVEL SLICE, TAMP, AND/OR VIBRATE MATERIAL UNDER AND AROUND THE PIPE TO A FIRM NON-YIELDING CONDITION TO SATISFACTION OF THE ENGINEER.

REV.	DATE	DESCRIPTION
1	4/11/12	Changed per Adendum 2

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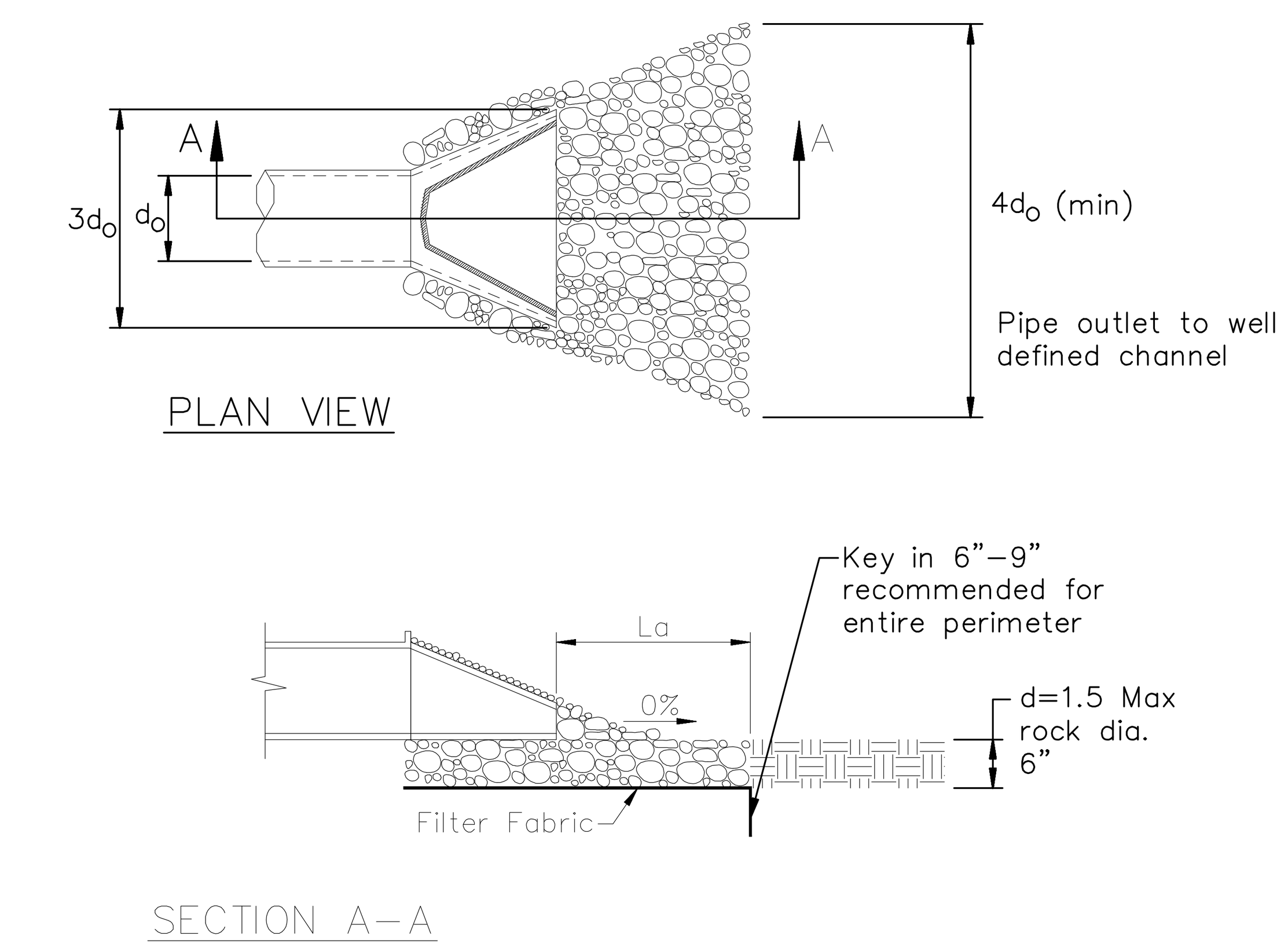
Addendum #2, Page 41 of 81

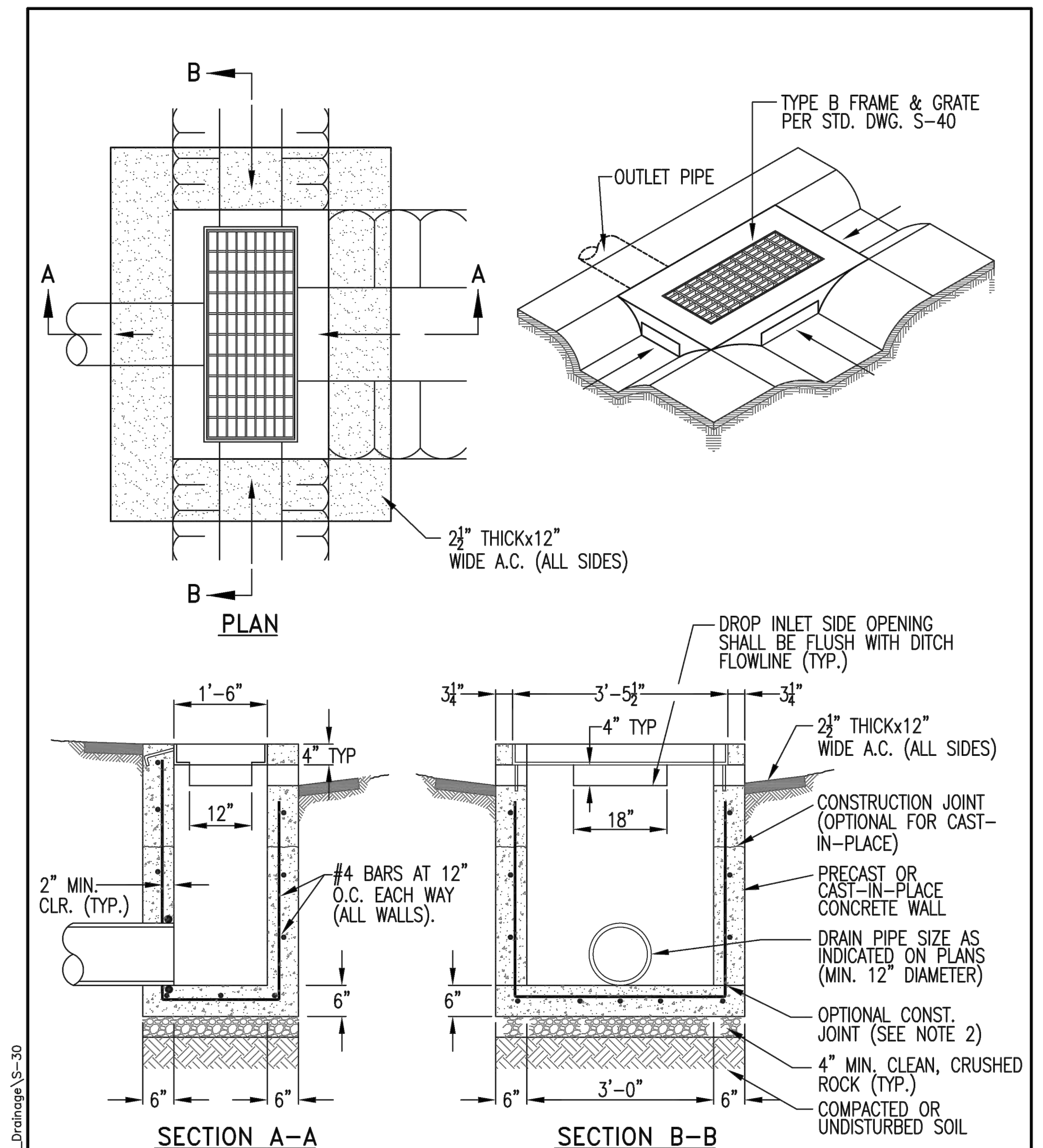
CITY OF SACRAMENTO DEPARTMENT OF UTILITIES — TRENCH BACKFILL AND RESURFACING — APPR'D BY: — NO SCALE — DATE: APRIL 2012 — DWG. NO. T - 80

8 NTS TRENCH AND BACKFILL DETAIL



Pipe Diameter (inches)	Discharge (cfs)	Apron Length, L_a (ft)	Rip-Rap D50 Diameter (Min.) (inches)
12	5	10	4
	10	13	6
18	10	10	6
	20	16	8
	30	23	12
	40	26	16
24	30	16	8
	40	26	8
	50	26	12
	60	30	16

7 NTS FLARED END SECTION WITH ROCK SLOPE PROTECTION



NOTES:
1. THERE SHALL BE A SIDE INLET FACING EACH CHANNEL THAT DISCHARGES TO THE BOX, AND A GRATE COVERED TOP OPENING. MINIMUM OF TWO SIDE INLETS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. CAST -IN- PLACE CONCRETE DRAIN INLETS SHALL CONFORM TO SECTION 20 OF THE STANDARD SPECIFICATIONS. BOTTOM OF INLET SHALL BE PLACED AT SAME TIME AS SIDE WALLS, UNLESS NOTED OTHERWISE.
3. PRECAST DRAIN INLETS TO BE RATED FOR H20 LOADING & SHALL BE APPROVED BY THE ENGINEER.

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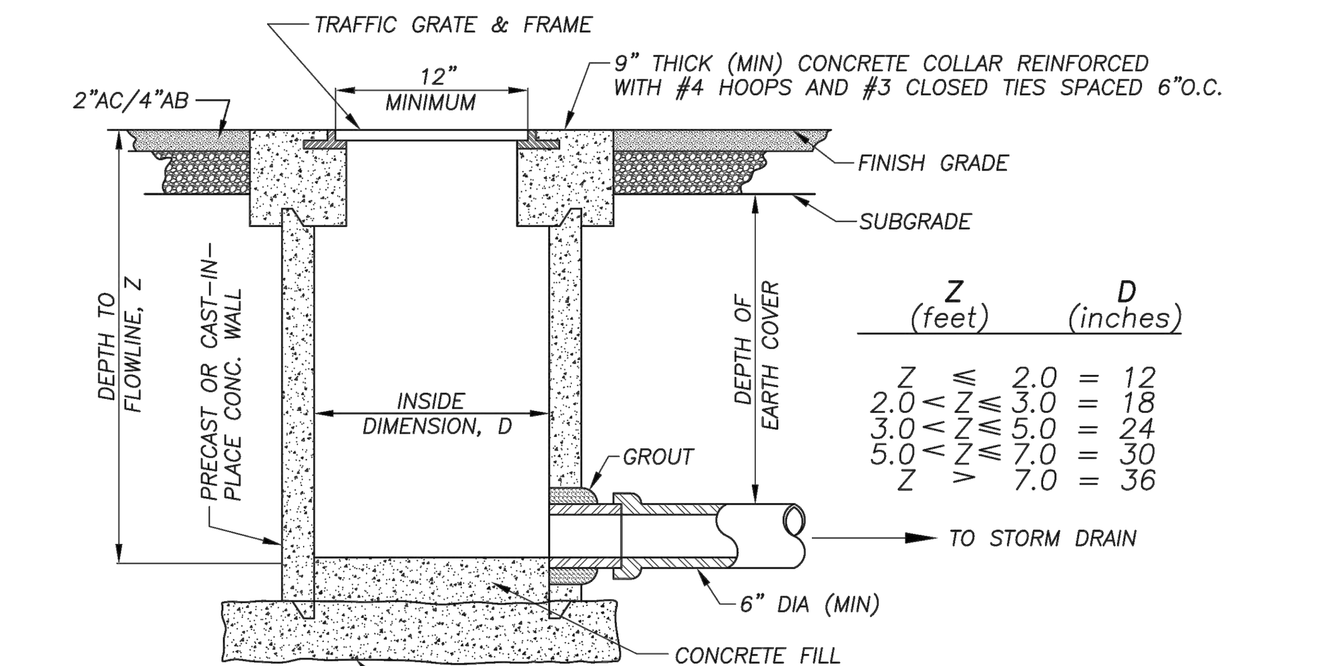
CITY OF SACRAMENTO DEPARTMENT OF UTILITIES — DITCH BOX — APPR'D BY: — NO SCALE — DATE: MAY 2007 — DWG. NO. S-30

6 NTS DITCH BOX



Z (feet)	D (inches)
2.0 ≥ Z	12
2.0 < Z ≤ 3.0	18
3.0 < Z ≤ 5.0	24
5.0 < Z ≤ 7.0	30
Z > 7.0	36

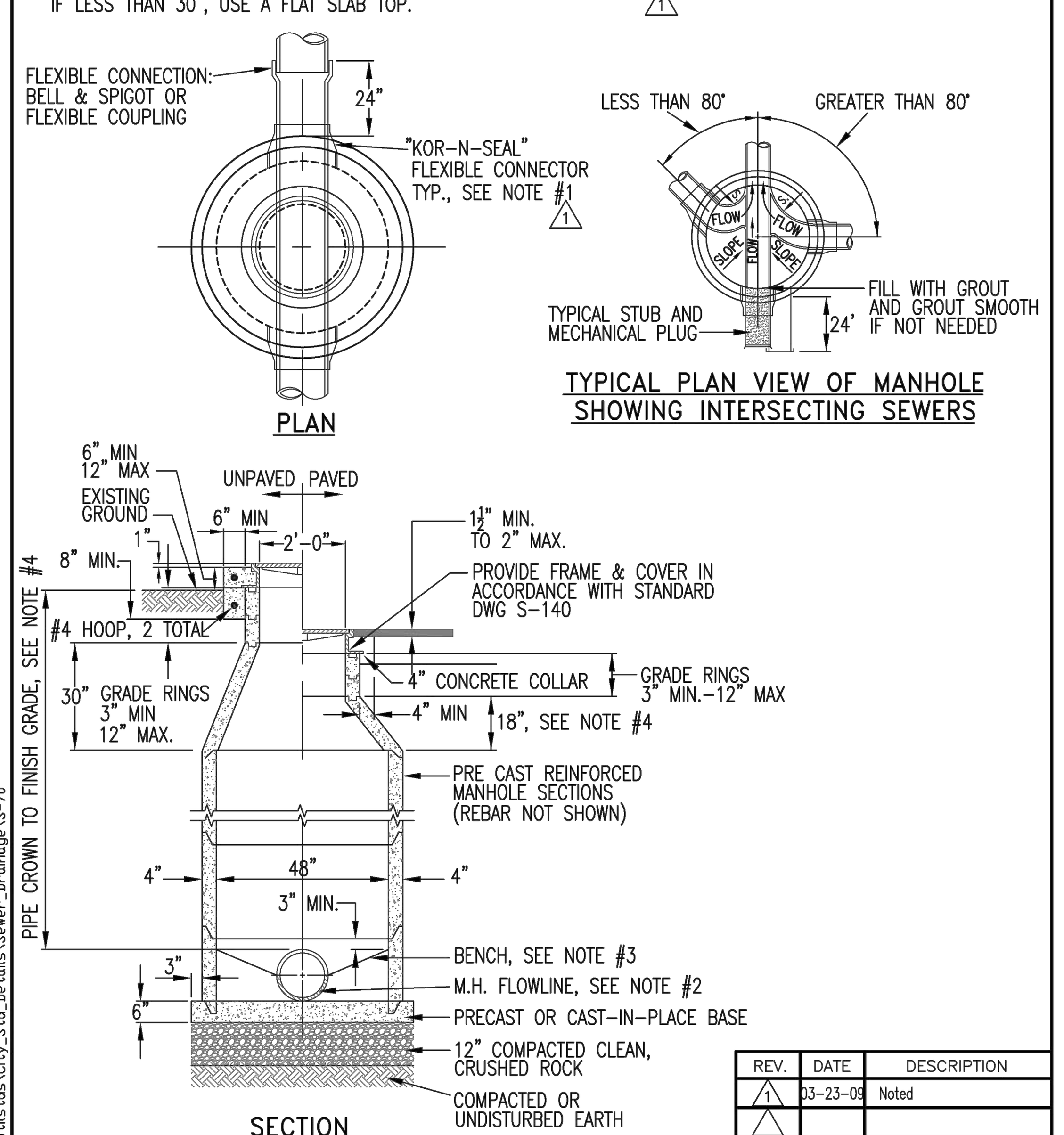
DRAINAGE INLET (TYPE I)
FOR COLLECTION AND DISCHARGE INTO SEPARATE STORM DRAIN

NOTE:
1. MINIMUM WALL THICKNESS IS 6 INCHES FOR CAST-IN-PLACE CONCRETE.
2. REINFORCE CAST-IN-PLACE CONCRETE WALLS WITH #4 BARS AT 12"O.C. EACH WAY WITH 2" MIN. COVER FROM INSIDE FACE

FIGURE 4

5 NTS DRAIN INLET (TYPE 1) DETAIL

NOTES:
1. MANHOLES SHALL CONFORM TO SECTION 25 OF THE STANDARD SPECIFICATIONS. ANY CONNECTIONS ABOVE MANHOLE BASE SHALL BE CORED AND INSTALLED WITH RESILIENT FLEXIBLE CONNECTION. AN ADDITIONAL FLEXIBLE CONNECTION SHALL BE PLACED 24" OUTSIDE BASE.
2. FLOWLINE MATERIAL FOR MAIN PIPE AND INTERSECTING MAINS SHALL BE VITRIFIED CLAY EXCEPT: IF MANHOLE BASE IS PRECAST CONCRETE; OR MANHOLE BASE IS PLACED OVER MAIN WHICH IS "LAID THROUGH", IN WHICH CASE FLOWLINE MATERIAL SHALL BE SAME AS MAIN.
3. MANHOLE BENCH SHALL SLOPE UPWARDS FROM THE SPRING-LINE OF THE PIPE TO THE PROJECTED LEVEL OF THE CROWN OF THE PIPE AT THE MANHOLE WALL OR 12" ABOVE THE SPRING-LINE, WHICHEVER IS LESS.
4. IF PIPE CROWN TO FINISH GRADE IS BETWEEN 30" AND 39", USE A 18" CONE. (1) IF LESS THAN 30", USE A FLAT SLAB TOP.



REV.	DATE	DESCRIPTION
1	03-23-09	Noted

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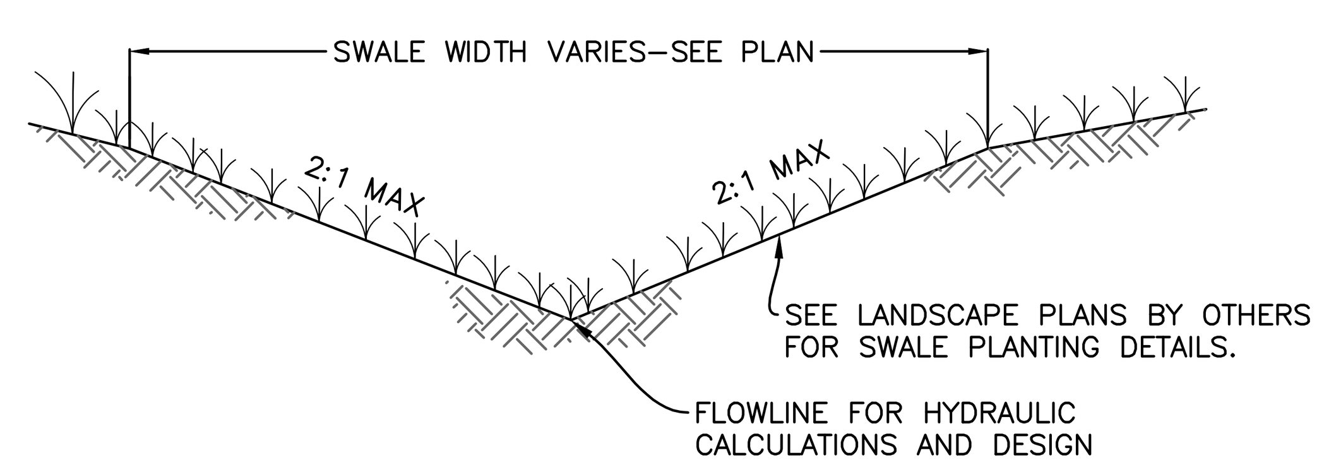
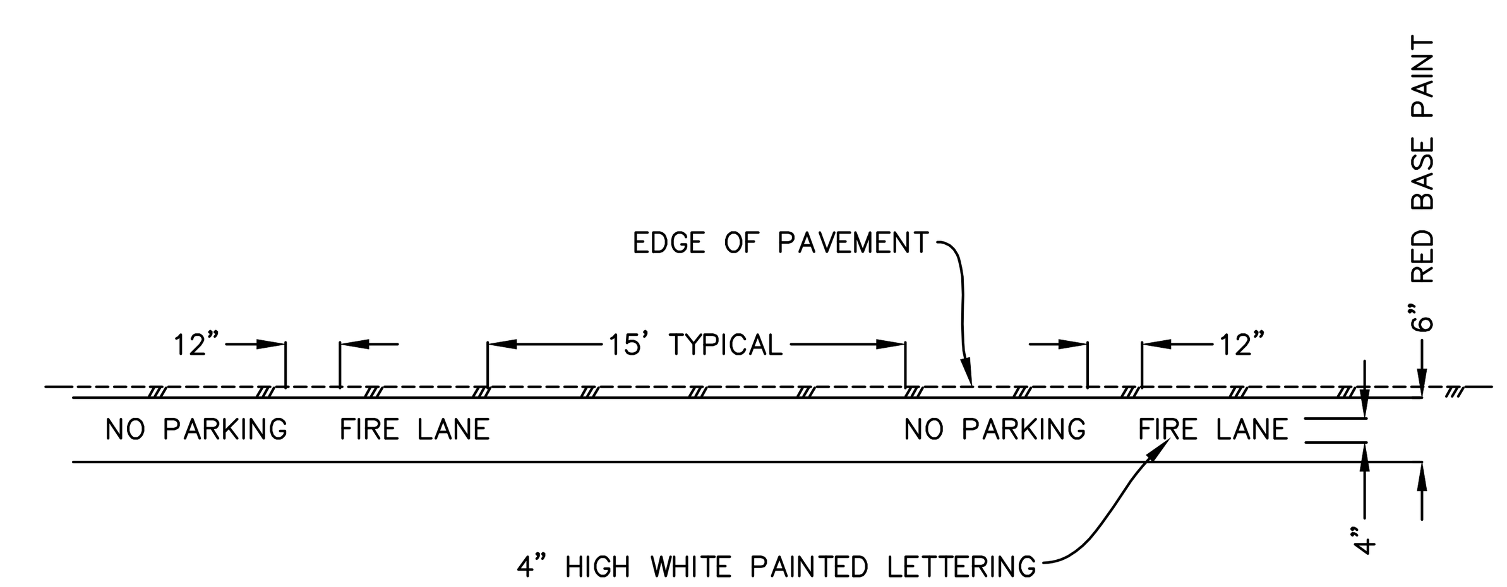
CITY OF SACRAMENTO DEPARTMENT OF UTILITIES — STANDARD MANHOLE No. 3 — APPR'D BY: — NO SCALE — DATE: MAY 2007 — DWG. NO. S - 70

4 NTS MANHOLE DETAIL

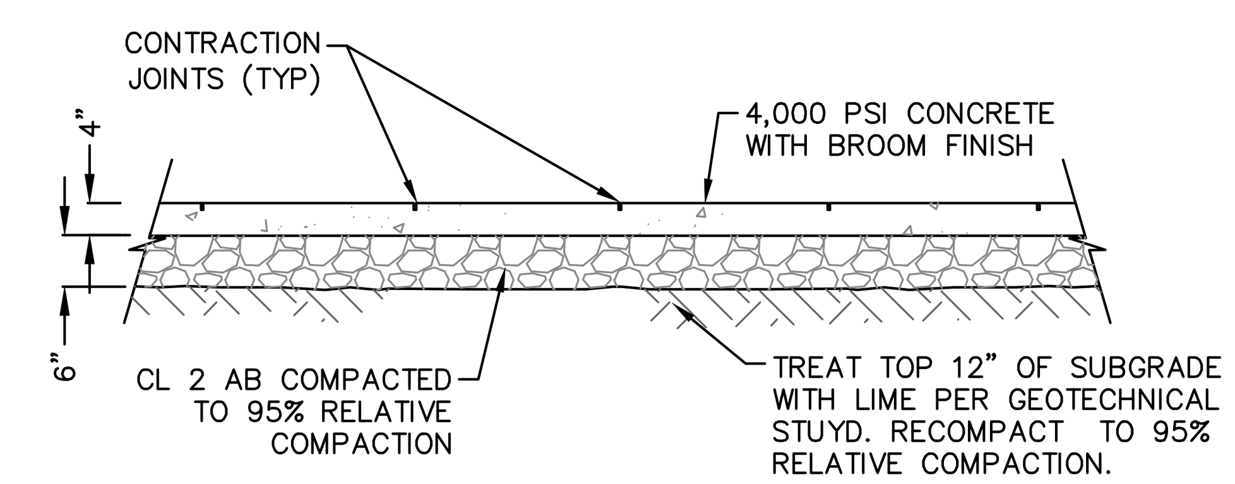


3 NTS VEGETATED SWALE DETAIL



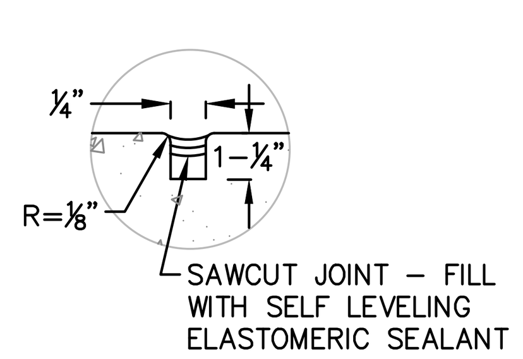
ALL RAISED CURBS IN "NO PARKING" AREAS SHALL BE PAINTED RED WITH ACCEPTABLE RED CURB PAINT AND LETTERED TO THE ABOVE STANDARDS. "LETTERING SHALL BE 4" HIGH, WHITE AND HAVE ¾" STROKE." MARKING TO LOCATED EVERY 15 FEET

2 NTS PAVEMENT MARKINGS FOR FIRE LANES

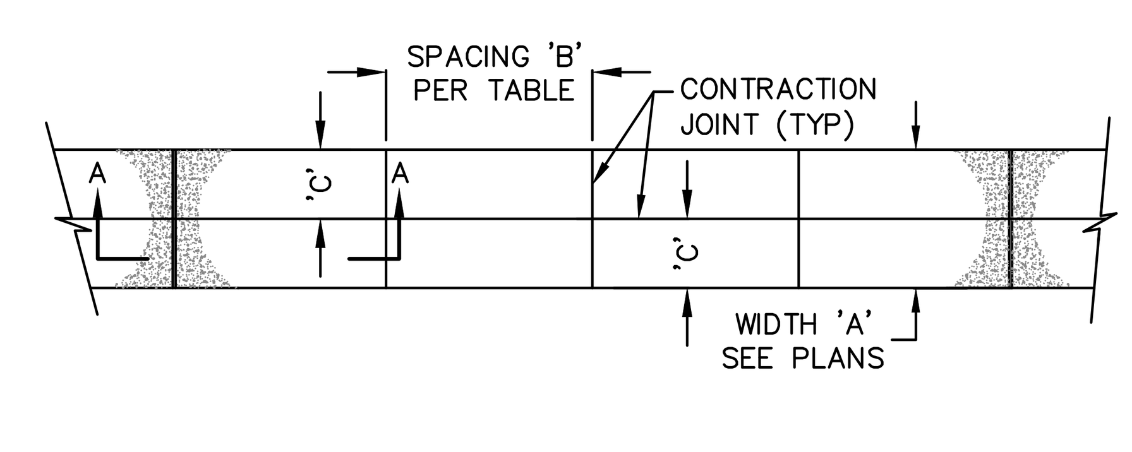


SECTION A - A

NOTE: CONTRACTION JOINT PATTERNS SHOULD DIVIDE PAVEMENTS INTO APPROXIMATELY SQUARES. THE LENGTH OF A PANEL SHOULD NOT BE MORE THAN 25% GREATER THAN ITS WIDTH.



CONTRACTION JOINT



WIDTH 'A'	4'	5'	6'	7'	8'	9'	10'
MAX JOINT SPACING 'B'	5'	5'	5'	6'	8'	5'	5'
MID LONGITUDINAL JOINT 'C'	N/A	N/A	N/A	N/A	N/A	4.5'	5'

PLAN VIEW

1 NTS CONCRETE WALK WITH JOINT SPACING

NO.	REVISION	BY	DATE	APPRV'D

DESIGN	MJW	CHECK	RFE
DRAWN	DCJ		RFE
QUANT.			

0 1 2 ORIGINAL SCALE IS IN INCHES

REGISTERED PROFESSIONAL ENGINEER SHAWN B. SOMERS No. C 80625 Exp. 3-31-25 6/14/2023 CIVIL STATE OF CALIFORNIA

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ON-SITE IMPROVEMENT PLANS FOR
NERRADSCALI SUBDIVISION
SACRAMENTO, CA 95838
APN: 237-0200-092

CONSTRUCTION DETAILS 2

CWE PROJECT NO. 21-188 – 1905 NORTH AVENUE, SACRAMENTO, CA 95838

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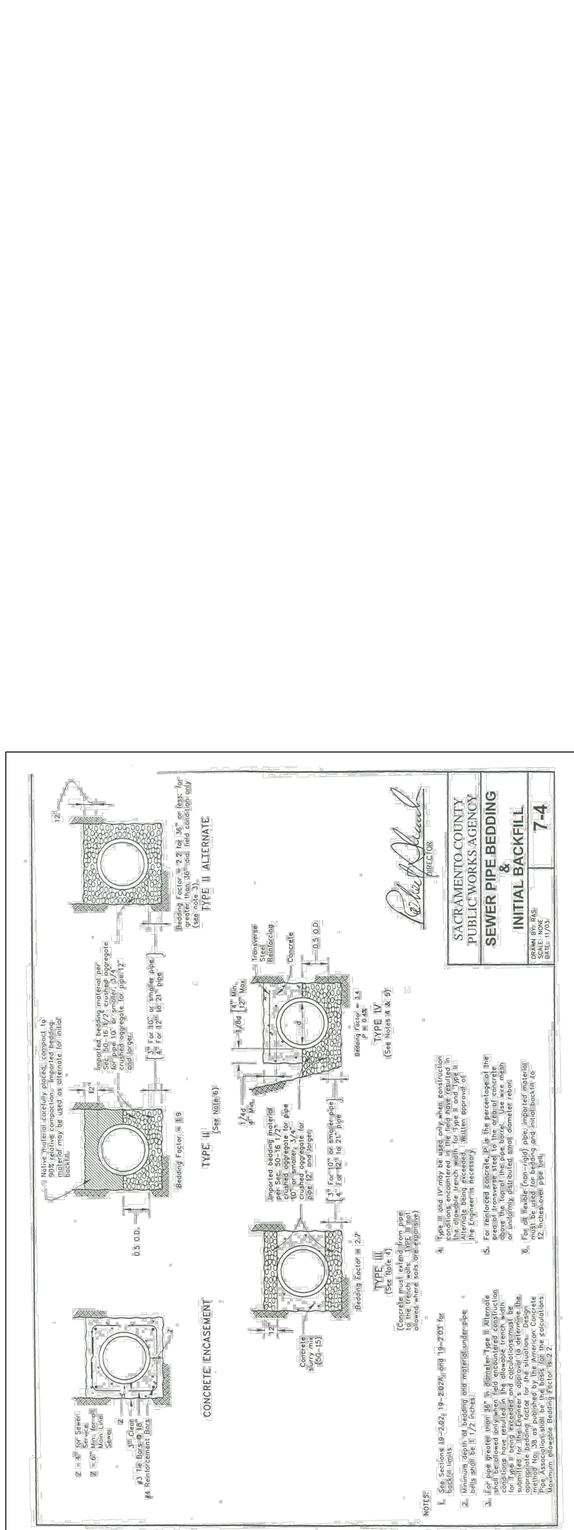
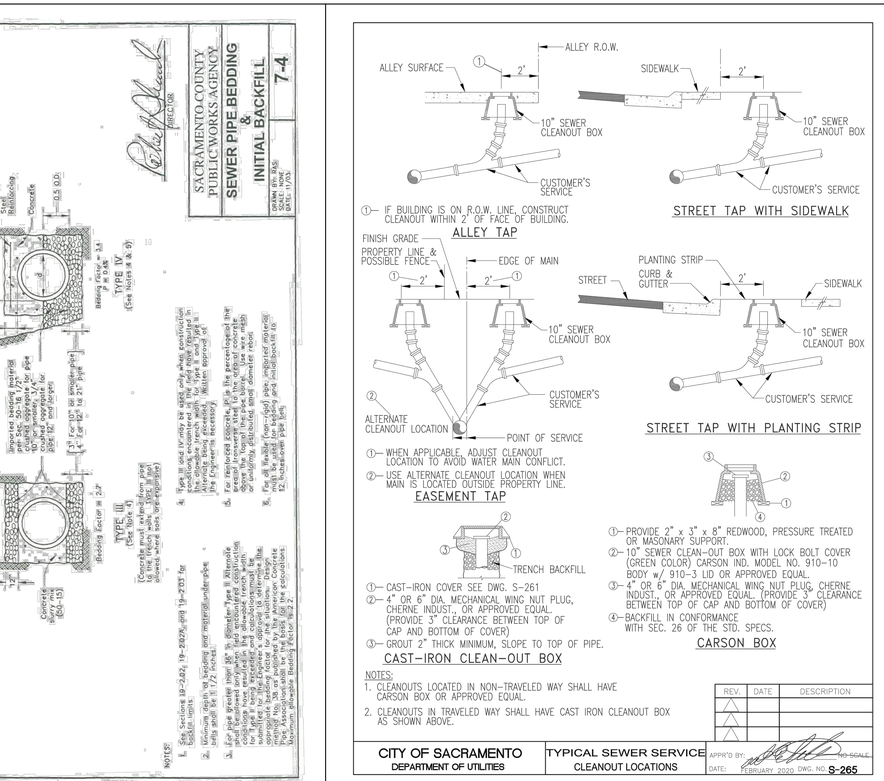
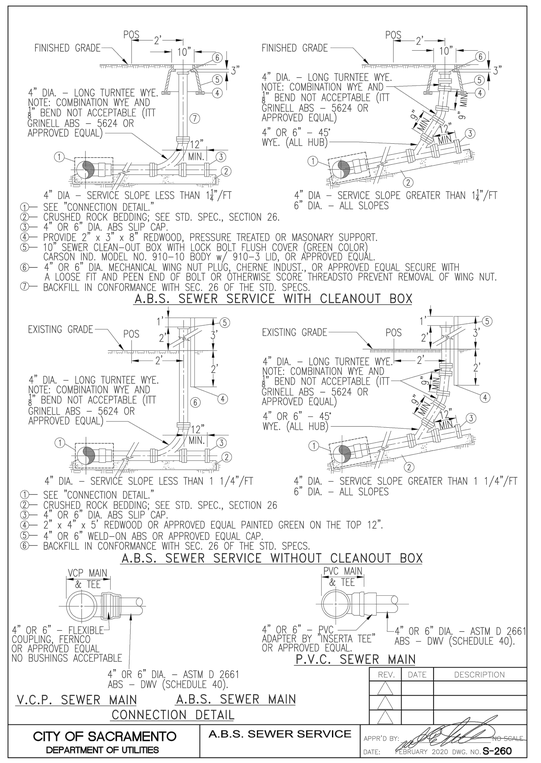
6/12/2023



3 | NTS | SEWER PIPE BEDDING



2 | NTS | TYP. SSCO LOCATIONS



1 | NTS | ABS SEWER SERVICE

BY		CHECK	NO.	REVISION	DATE	BY	APPR'D
	DESIGN	MJW					
	DRAWN	DCJ					
	QUANT.						

0 1 2 ORIGINAL SCALE IS IN INCHES

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ON-SITE IMPROVEMENT PLANS FOR
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SACRAMENTO, CA 95838
APN: 237-0200-092

CONSTRUCTION DETAILS 3

Sheet
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14 of 14
6/12/2023

CWE PROJECT NO. 21-188 – 1905 NORTH AVENUE, SACRAMENTO, CA 95838

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The study used Autodesk Hydraflow to calculate the HGL, when the project is supposed to use an excel spreadsheet or hand calculations using Mannings Equation so the Department of Utilities (DOU) can check the work. DOU does have a hydraflow software to verify the results.

Revise the study to meet City standards, see section 3.1 on the Onsite Design Manual, see link below:

https://www.cityofsacramento.org/-/media/Corporate/Files/DOU/Specs-Drawings/OnsiteDesignManual.pdf?la=en

The 10-year HGL was recalculated using Manning's equation. A narrative describing the process can be found in Section F on pages 8-9.

AGE STUDY

FOR

RTH AVENUE

An onsite drainage study shall include the following (at a minimum):
- A written description of the project.
- Reference to the City drainage basin that contains the project and regional study if applicable.
- Elevation datum used in study and for all referenced information.
- 10 and 100-year event tailwater elevations and sources.
- Summary of proposed drainage improvements.
- Attached excerpts of studies and other information that may be referenced.
- Summary of the methods used for the drainage study.
- Copies of calculations, spread sheets or computer models.
- An exhibit that:
* Depicts existing and proposed impervious areas.
* Shows proposed detention methods and locations including the volume of storage provided.
* Depicts the onsite drainage system and connection points to the City system; including drainage inlet and manhole locations; and pipe lengths, sizes, slopes and invert elevations.
* Denotes the elevation and location of the controlling overland release point(s) on the City drainage system. See Section 11.1.3 of the DPM for a definition of overland release point.
* Depicts onsite drainage shed areas, includes overland release arrows to the public right-of-way and calls out drainage shed breakpoint elevations.

-See section C
-Referenced on page 9

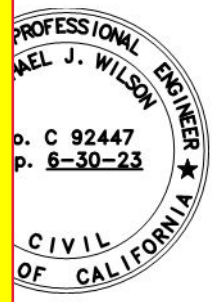
-See section A

-See section F

-See section F
-See Appendix C

-See section F
-See Appendix D

-See Appendix B



epared by,
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as Blvd., Suite 160
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Ph 916-772-7800
CWE-RFE Project No. 21-188

Make sure that the study matches the latest onsite plans.

Most up-to-date onsite plans are referenced in this revised study

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I. RECOMMENDATIONS 10
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APPENDIX

APPENDIX A ..... VICINITY MAP AND SITE PLAN EXHIBITS

APPENDIX B ..... PROJECT SITE SHED MAPS AND OTHER SITE EXHIBITS

APPENDIX C ..... MISCELLANEOUS DOCUMENTATION

APPENDIX D ..... SUPPORTING CALCULATIONS

A. PROJECT LOCATION

The proposed residential grading, drainage, and utilities project is located east of the intersection of North Avenue and Rio Linda Boulevard, just south of Interstate 80 in the City of Sacramento, State of California, 95838. The approximate coordinates of the project site are latitude 38.640581° north and longitude -121.445747° west. The project property is about 1.41 acres and has APN 237-0200-092. Approximately 1.32 acres will be disturbed as part of this project, which includes off-site improvements encompassing the widening of North Avenue. The project's location is shown on the Vicinity Map in Appendix A.

B. EXISTING SITE CONDITIONS

In its existing condition, the site is partially developed with a house on-site with driveway access to North Avenue. Additionally, there are two wooden sheds and one metal shed north of the existing house. There is an electrical transmission tower located at the northeast corner of the property which includes a 100-foot-wide easement that encumbers a portion of the eastern part of the site. The southern property line extends 20 feet beyond the existing right-of-way, and there is rolled curb, gutter, and sidewalk along the project frontage, between the City right-of-way and the southern property line. The remainder of the site is undeveloped and contains a fair number of trees and short, dead grass. The site slopes consistently from southwest to northeast, and it is expected that the most incident rainfall is infiltrated, with some surface flow terminating into the City-owned concrete channel north of the property. These slope of the ground is moderate (between 2-5%).

There is no existing on-site drainage infrastructure, and most rainfall is either infiltrated or discharged by surface runoff. The frontage curb, gutter, and sidewalk produce the only runoff to the south, which is conveyed by existing City-owned underground pipes. Existing drainage patterns are further discussed in section E of this report. The property is located within Zone "X", indicating the site is outside the 0.2 annual chance flood plain as determined by the national flood insurance program according to Map number: 06067C0064 dated: June 16, 2015. The Pre-construction Shed Map, SM1, in Appendix B shows existing conditions on the project site.

Table 1 below summarizes the surrounding properties.

Table 1: Site Description (Surrounding Areas)

North	City-owned concrete channel, beyond which is Interstate 80
South	North Avenue, beyond which are residential properties
East	North Avenue Apartments
West	Residential property

Geotechnical Findings

A geotechnical investigation was performed by Allerion Consulting Group on March 23, 2022 and discovered the following information.

The site was generally consistent in subsurface earth material and the uppermost soils to a depth of approximately 1.5 feet consisted of medium stiff, moist, dark brown, sandy silt, with occasional gravel. Underlying the silt was discovered stiff to very stiff, moist, light brown and dark brown, sandy silty clay to varying depths between 2.5 to 3 feet. The material encountered below the upper soil to a depth of approximately 13 feet consisted of very stiff and hard, moist, light brown with orange mottles and red-brown, sandy silt. Below this consisted of dense, moist, dark brown to brown, SAND to a depth of approximately 19 feet.

Groundwater was not encountered within any of the exploratory borings.

C. PROPOSED PROJECT DESCRIPTION

This project proposes to improve the site by subdividing the property into 8 lots and constructing residential structures on each lot (except the lot with the existing house). Additionally, a private access drive, easement, and adjacent pedestrian sidewalk will be constructed to provide access and fire protection to the landlocked lots. North avenue will be widened to the standard 35.5' half width right-of-way of a minor collector per City of Sacramento standards. This will include additional paving and rolled curb, gutter, and detached sidewalk within the expanded public right-of-way. The existing house lot and one other lot will have direct access to North Avenue, while t[illegible]nect to the private access drive, which will have driveway access to North Aver[illegible]rner of the property. In addition to the aforementioned improvements, the pro[illegible]ping and underground water, sanitary sewer, and drainage infrastructure.

Revised.

Per the plans the detention basin will discharged to the City drain main in North Avenue.

The project will also add an on-site private detention basin that will se[illegible] and provide flood control for the site. The site aims to maintain existing drainag[illegible]wing the public sidewalk to North Avenue and convey the remainder of the site to the detention basin at the north of the property, eventually discharging into the concrete-lined channel beyond the north property line. See section F for an in-depth discussion of the proposed storm drainage improvements. Other underground infrastructure will include private water and sanitary sewer lines, as well as minimal storm drain piping to convey flows to the basin.

The total area to be disturbed will be approximately 1.32 acres. The Site plan in Appendix A shows the proposed site and the Post-Construction Shed Map, SM2, in Appendix B shows proposed site grading.

D. PURPOSE OF REPORT

The purpose of this report is to present the design of the storm drainage system and to demonstrate that the design complies with the City of Sacramento Design and Procedures Manual, the City of Sacramento Onsite Design Manual, and the Sacramento Region Stormwater Quality Design Manual.

The report is divided into four (4) main parts:

1. Description of existing drainage conditions and evaluation of pre-construction runoff.
2. Description of proposed drainage improvements, evaluation of post-construction runoff, analysis of proposed storm drainage system, and discussion of water quality treatment applicability.
3. Conclusions based on drainage analysis.
4. Recommendations.

E. EXISTING STORM DRAINAGE CONDITIONS

CWE-RFE used topographic data from a survey performed by Michael Dequine and Associates, Inc. in April, 2018. Using this data, CWE-RFE determined drainage shed limits of the existing site. The site is mostly pervious with some concrete paving and buildings on-site. The frontage includes rolled curb, gutter, and sidewalk with asphalt paving beyond the lip of gutter. The existing drainage sheds can be seen on the Pre-Construction Shed Map, SM1, in Appendix B. There are two primary drainage sheds for the site which terminate in opposite directions. The largest shed includes the entire area from the back of existing sidewalk to the north property line. This area slopes at an average of 2.5% from south to north where it sheet flows to an existing City-owned concrete drainage channel off-site. It is expected that most rainfall is infiltrated for smaller, more common storms as most of the site is undeveloped. The smaller shed includes the project frontage, which conveys flow via curb and gutter to the west where it is accepted by a public drainage inlet beyond the project property. The existing site is approximately 89.3% pervious and is mostly covered by short, dead grass and several trees. There is no existing drainage infrastructure on-site, as the only nearby facilities are a 48” public stormdrain pipe in North Avenue and a City-owned concrete channel north of the property. Existing hydraulic calculations were not done for existing conditions, as the City of Sacramento DOU Onsite Design Manual static method only requires post-development conditions to determine required detention and stormdrain pipe sizing. These methods and results are further discussed later in this report. The existing drainage shed summary can be seen in Table 1 below.

Table 1: Existing Shed Summary

Drainage Shed	Area (SF)	Percent Impervious
A-X1	57,078	3.93%
A-X2 (Frontage)	4,327	100%

*See Pre-Construction Shed Map, SM1, in Appendix A for more information

F. POST-CONSTRUCTION STORM DRAINAGE CONDITIONS

The post-construction storm drainage system was designed to satisfy requirements of the City of Sacramento DOU Design and Procedures Manual and Onsite Design Manual. According to these standards, developments must aim to mitigate post-construction flows using onsite storage methods as well as design stormdrain conveyance systems to satisfy certain conditions for the 10-yr and 100-yr storms. For this project, the detention basin was designed using the Static Analysis method as outlined in section 3.1.1 of the Onsite Design Manual and the pipes were analyzed for the 10-yr storm using the rational method (Static Analysis) as outlined in section 3.1.2. The Post-Construction Shed Map, SM2, can be seen in Appendix B.

Onsite Project Storage

According to the DOU Onsite Design Manual, any project that adds more than 500 square feet of impervious surface must be fully mitigated as to not inundate the City's separated stormwater system. For this project, mitigation will be achieved by a singular detention basin for the entire site designed per the Static Method as outlined in section 3.1.1 of the Onsite Design Manual. According to Figure 1 of the manual, this project is in the City of Sacramento drainage basin 157, meaning it must store 7,000 cubic feet of volume for each additional acre of impervious surface resulting from the development. This number is taken from Figure 10 of the Onsite Manual. Comparing the Pre-Construction Shed Map to the Post-Construction Shed Map, there is an increase of 20,442 square feet of impervious surface resulting from this project. That attributes to 0.469 acres of additional impervious surface and therefore 3,285 cubic feet of required detention volume. A summary of the pre and post project land cover can be seen on the shed maps in Appendix B. A summary of the required detention volume calculation can be seen in Table 2 below.

Table 2: Required Detention Volume

Project Condition	Impervious Surface (SF)	Impervious Surface Increase (SF)	Impervious Surface Increase (AC)	Detention Volume Requirement	Detention Design Volume (CF)
Existing	6,571	20,442	0.469	7,000 CF/AC	**3,285**
Developed	27,013				

For this project, the universal detention basin has been designed to exceed the required capacity based on the Onsite Design Manual and calculated in Table 2. In addition to determining the required volume of the basin, the outlet control structure has been designed based on Equation 3-1 in the Manual. This equation and methodology can be seen in Appendix C and calculations can be seen in Appendix D. Using equation 3-1, an orifice diameter of 2 inches will be used for the outlet control structure.

It should be noted that DMA-5 as seen on the Post-Construction Shed Map is the only shed that does not flow to the on-site detention basin. This shed includes the expanded project frontage and sheet flows to North Avenue. As can be seen on the Pre-Construction Shed Map, shed A-X2 is a similar shed that includes the existing project frontage. It would not be feasible or practical to route DMA-5 to a detention basin as it mimics the existing sheet flow conditions of the project frontage. Additionally, the detention basin was sized to accommodate increased impervious area for the entire site, including DMA-5, and therefore provides attenuation in-lieu of this area. Therefore, this small area will not be designed to flow to the on-site detention basin.

Onsite Hydraulic Analysis and Overland Release

Per the DOU Design and Procedures Manual, project that are less than 10 acres may use the Rational Method to determine flows for designing underground stormdrain pipes. Per the Onsite Design Manual, only a 10-yr event storm analysis is required. The 10-yr flows for this project were calculated per Equations 3-2 and 3-3 of the Manual which implement the rational method using weighted coefficients based on pervious and impervious area and weighted time of concentrations seen in Table 3-1. The methodology can be seen in Appendix C and the calculations can be seen in Appendix D. Using these equations, the flows for each DMA (except DMA-5) can be seen in Table 3 below.

Table 3: 10-YR Design Flows

Drainage Management Area (DMA)	10-YR Design Flow (CFS)
DMA-1	0.557
DMA-2	0.910
DMA-3	0.151
DMA-4	0.309

According to the Onsite Design Manual, private drainage pipe shall be sized to keep the 10-yr storm HGL below vehicular and/or pedestrian access surfaces. To ensure the system meets this requirement, the on-site stormdrain network was analyzed using the AutoCAD Civil 3D extension Hydraflow Storm Sewers. This program uses Manning's equation to do a backwater HGL analysis throughout the stormdrain system, which is consistent with the Onsite Design Manual. The Manual also indicates the starting HGL to be at the invert elevation of all pipes entering the detention basin at the connection point to the facility. The outlet of the detention basin was not analyzed as the basin was designed to fully store the 100-yr storm. Per the calculations as seen in Appendix D, each on-site pipe meets the requirement to keep the HGL below proposed grade. A summary of the results can be seen in Table 4 below.

Table 4: 10-YR HGL Analysis

Pipe #*	10-YR Starting HGL (ft)	10-YR HGL at Drainage Node (ft)	Nearest Vehicular/Pedestrian Elevation at Drainage Node (ft)	Freeboard (ft)
1	25.46’	26.22’	32.74’	6.52’
2	N/A	26.82’	32.86’	6.04’
3	N/A	26.56’	31.10’	4.54’
4	25.46’	31.03’	32.83’	1.8’

The last requirement f that all building finished floors mainta vent HGL and 12 inches of freeboa cause no City drainage masterplan foot above the most downstream a he City-owned channel, and is call The controlling overland release poi vation of 33.17’ and is also called o lling minimum finished floor elevatio be at or above this elevation.

The 100-year event HGL can be obtained from a City drainage masterplan for the appropriate basin, or if none exists the HGL can be assumed to be one-foot above the most downstream adjacent City drainage inlet. If there is no adjacent City drainage system, assume the 100-year event HGL is one-foot above the lowest adjacent street or alley surface elevation fronting the project site.

There is an existing City drainage masterplan 157.

See updated narrative.

G. STORMWATER QUALITY EVALUATION

The City of Sacramento defers to the Stormwater Quality Design Manual (SQDM) for requirements of hydromodification, low impact development, and stormwater quality. According to Table 3-2 of the manual, single family residential projects with a gross area of less than 20 acres are exempt from these three categories and are only required to implement the source control measures outlined in Table 3-3 of the manual seen below. Table 3-2 can be seen in Appendix C. The development at 905 North Avenue is below this 20 acre threshold and therefore will only be designed for the items below

Table 5: Post-Construction Source Control Measures

Source Control	Used	Description
Efficient Irrigation	YES	Irrigation to be designed by landscaped architect.
Fueling Areas	N/A	No fueling areas proposed.

Landscaping	YES	Landscape throughout property, landscaping between building and detention basin, landscape strip between sidewalk and curb
Loading Areas	N/A	No loading areas proposed
Outdoor Storage Areas	N/A	No outdoor storage areas proposed.
Outdoor Work Areas	N/A	No outdoor work areas proposed
Storm Drain Markings and Signs	YES	Storm drains will be marked.
Vehicle/Equipment Wash Areas	N/A	No vehicle equipment wash areas proposed.
Waste Management Areas	N/A	No waste management areas proposed.

Reference Table 3-3 from the Sacramento Region Stormwater Quality Design Manual

H. CONCLUSIONS

- A universal detention basin for the property is designed for a volume consistent with the requirements outlined in the City of Sacramento DOU Onsite Design Manual. This basin will also have an outlet control structure designed per the Manual.
- The 10-yr design storm will be adequately conveyed by the private on-site piping and will contain the HGL elevations under vehicular/pedestrian access areas.
- The development has been designed to maintain a minimum of 6 inches of freeboard from 1 foot above the most downstream adjacent City inlet and 12 inches above the overland release point from the site.
- New impervious areas will require new stormwater quality measures including source control measures only.

I. RECOMMENDATIONS

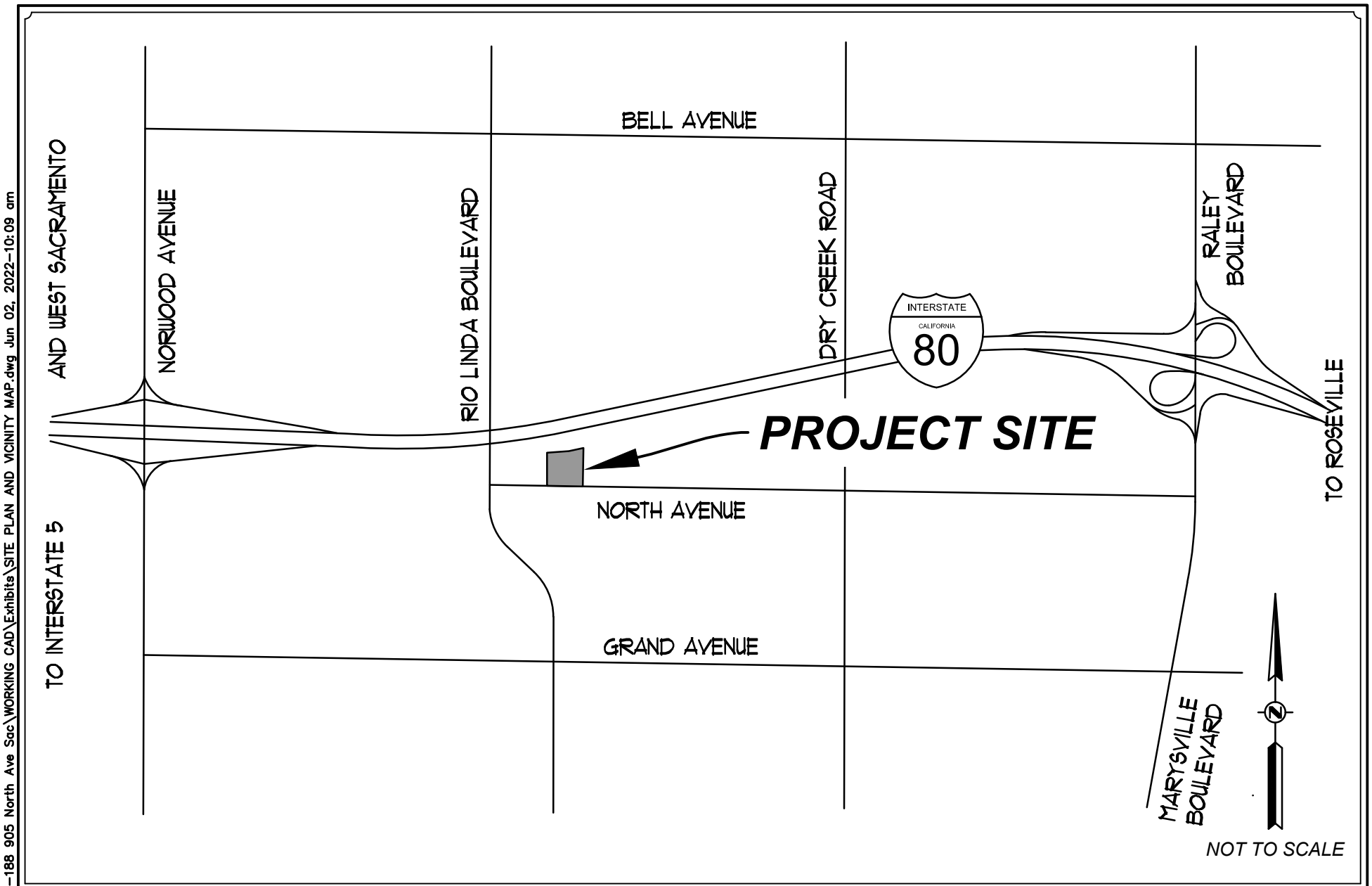
In order to sufficiently account for on-site and off-site drainage and water quality treatment, as applicable to this project, CWE-RFE recommends that the final design and construction include grading and storm drainage improvements consistent with the 905 North Avenue Improvement Plans and the conclusions outlined in this drainage study.

J. REFERENCES

- Autodesk Hydraflow Extension for AutoCAD Civil 3D 2021
- City of Sacramento Department of Utilities Onsite Design Manual (May 1st, 2020)
- City of Sacramento Department of Utilities Design and Procedures Manual, Section 11 (2018)
- Sacramento Region Stormwater Quality Design Manual (July 2018)

APPENDIX A

VICINITY MAP AND SITE PLAN EXHIBITS



905 NORTH AVENUE
SACRAMENTO
CALIFORNIA

VICINITY MAP

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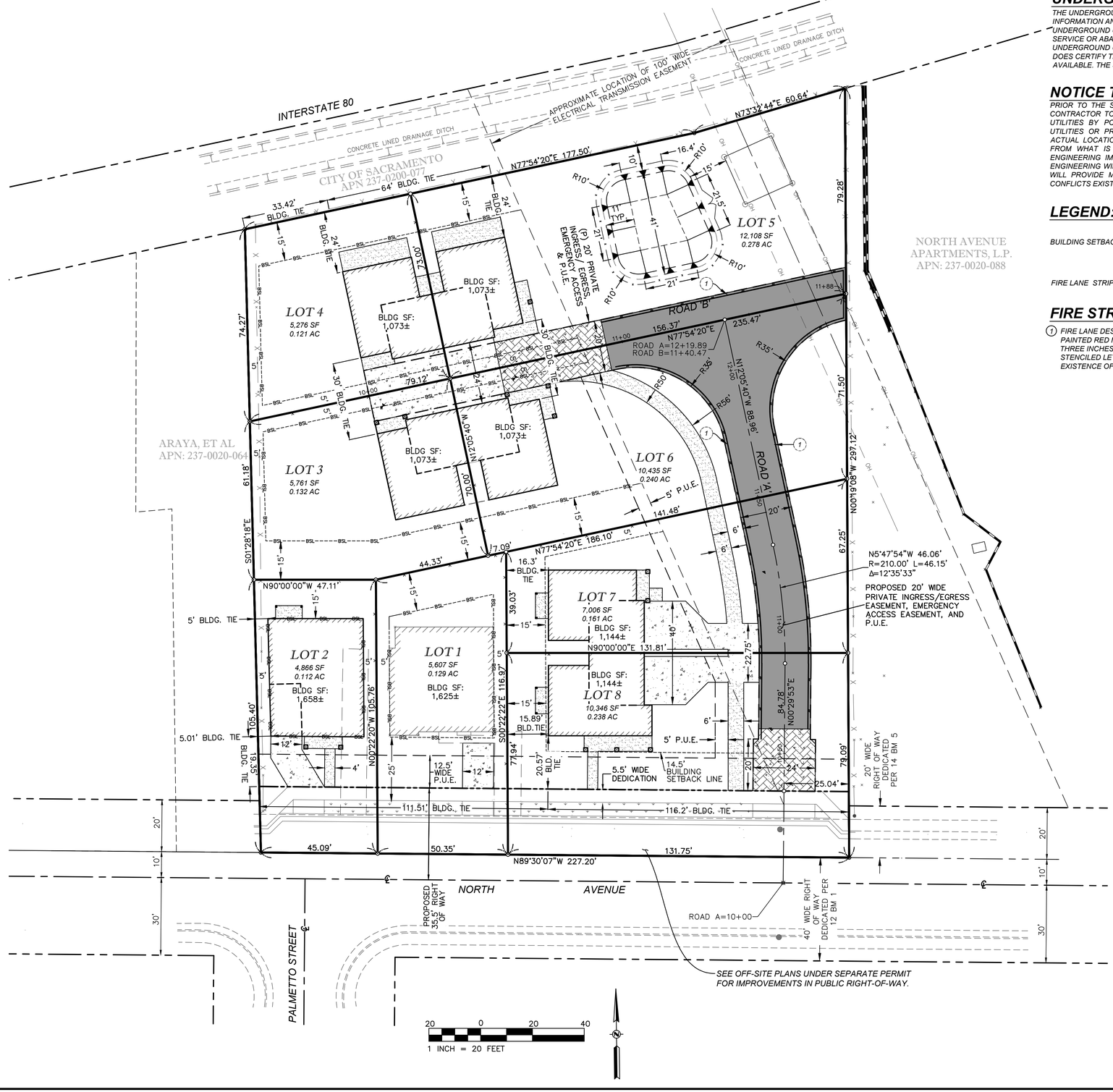

NOTES:

DIMENSIONS ARE TO BOTTOM FACE OF CURB UNLESS SPECIFIED OTHERWISE. BUILDING OUTLINE REPRESENT THE OUTER-MOST ELEMENT OF BUILDINGS. CONTRACTOR SHALL REFER TO FOUNDATION PLANS FOR CONSTRUCTION OF FOUNDATION AND BUILDING SLAB.

UNDERGROUND UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

NOTICE TO CONTRACTOR - ORDER OF WORK:

PRIOR TO THE START OF ANY CIVIL WORK, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES BY POTHOLING AT ALL POINTS OF POTENTIAL CONFLICT WITH PROPOSED UTILITIES OR PROPOSED POINTS OF CONNECTION WITH EXISTING UTILITIES. IF THE ACTUAL LOCATIONS OF THE EXISTING UTILITIES FOUND IN THE FIELD ARE DIFFERENT FROM WHAT IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING IMMEDIATELY AND PROVIDE THE ACTUAL LOCATION INFORMATION. RFE ENGINEERING WILL VERIFY IF THERE ARE ANY CONFLICTS WITH THE IMPROVEMENTS AND WILL PROVIDE MODIFICATIONS TO THE DESIGN TO MITIGATE THE CONFLICTS IF ANY CONFLICTS EXIST.

LEGEND:

BUILDING SETBACK ——BSL——BSL——BSL——

FIRE LANE STRIPING ————————

FIRE STRIPING KEY NOTE:

(1) FIRE LANE DESIGNATION STRIPE AS DELINEATED ON THE DRAWINGS. CURBS SHALL BE PAINTED RED MARKED BY WHITE LETTERING "FIRE LANE - NO PARKING" A MINIMUM OF THREE INCHES TALL WITH A ½ INCH WIDE MINIMUM STROKE. THE INTERVAL BETWEEN STENCILED LETTERING SHALL BE ADEQUATE TO INFORM THE PUBLIC OF THE EXISTENCE OF THE FIRE LANE BUT IN NO EVENT SHALL THE INTERVAL EXCEED 50 FEET.

NO.	REVISION	DATE	BY	APPRV'D

	BY	CHECK
DESIGN	MJW	MJW
DRAWN	DCJ	MJW
QUANT.		

ORIGINAL SCALE IS IN INCHES (0 1 2)

REGISTERED PROFESSIONAL ENGINEER MICHAEL J. WILSON No. C 92447 PRELIMINARY NOT FOR CONSTRUCTION OF CALIF.

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ON-SITE IMPROVEMENT PLANS FOR
905 NORTH AVENUE
SACRAMENTO, CA 95838
APN: 237-0200-092

HORIZONTAL CONTROL PLAN

Sheet
C5
6 of 13
06/02/2022

811 Know what's **below.** **Call** before you dig. or (800) 227-2600

CWE-RFE PROJECT NO. 21-188 – 1905 NORTH AVENUE, SACRAMENTO, CA 95838

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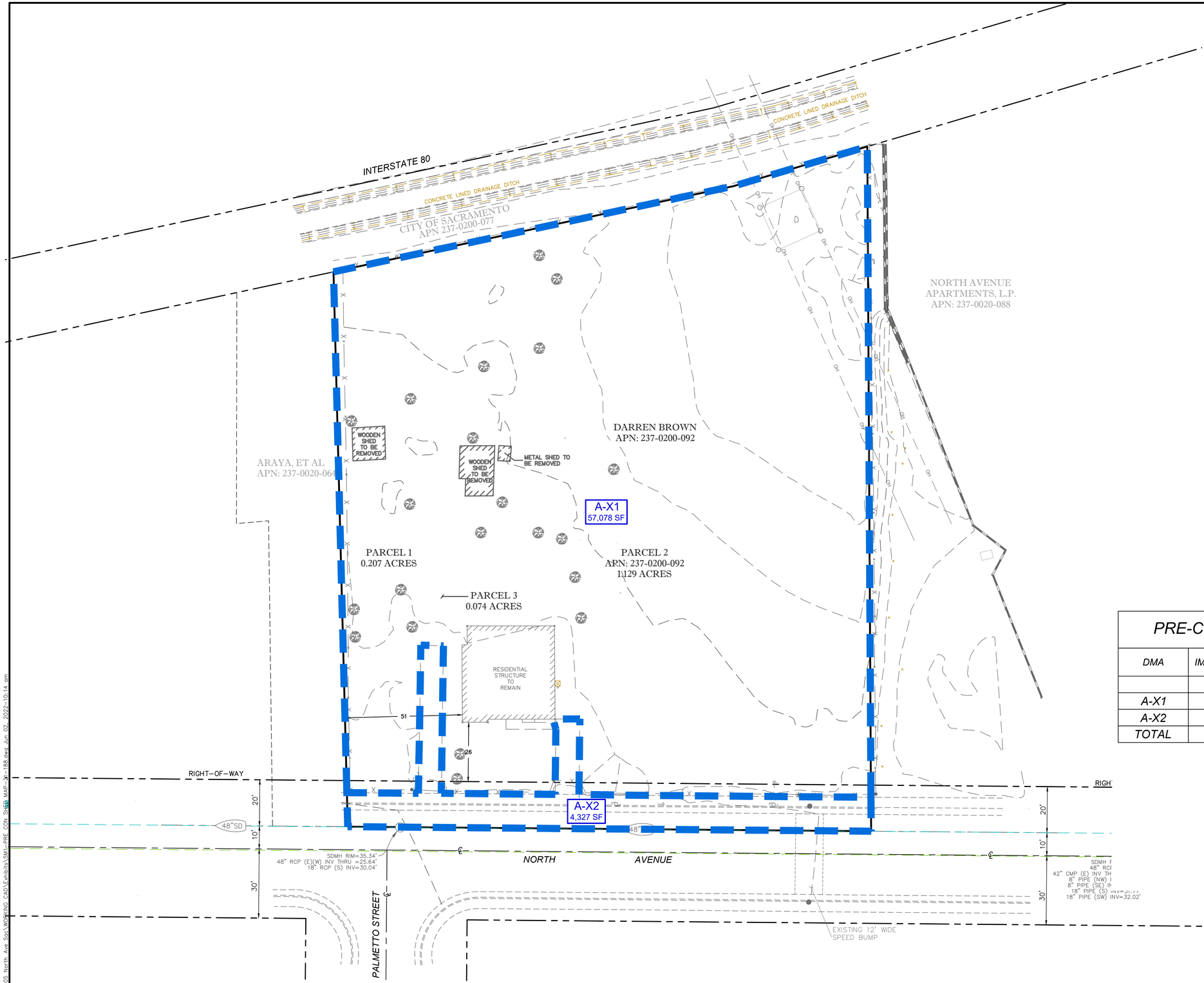
APPENDIX B

PROJECT SITE SHED MAP EXHIBITS



LEGEND

- DRAINAGE AREA DESIGNATIONS AND AREA — A-X1, 3,181 SF
- DRAINAGE AREA BOUNDARY
- OVERLAND RELEASE

PRE-CONSTRUCTION SHED AREAS (SF)

DMA	IMPERVIOUS	PERVIOUS	TOTAL	% IMPERVIOUS
	SF	SF	SF	
A-X1	2,244	54,834	57,078	3.93%
A-X2	4,327	0	4,327	100.00%
TOTAL	6,571	54,834	61,405	10.70%

20 0 20 40
1 INCH = 20 FEET

APPR'D	BY	DATE	REVISION	NO.

	BY	CHECK
DESIGN	MJW	MJW
DRAWN	DCJ	MJW
QUANT.		

ORIGINAL SCALE IS IN INCHES (0, 1, 2)

REGISTERED PROFESSIONAL ENGINEER — MICHAEL J. WILSON — No. C 92447 — PRELIMINARY — NOT FOR CONSTRUCTION — STATE OF CALIF.

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ON-SITE IMPROVEMENT PLANS FOR
905 NORTH AVENUE
SACRAMENTO, CA 95838
APN: 237-0200-092

PRE-CONSTRUCTION SHED MAP

Sheet
1 of 2
06/02/2022

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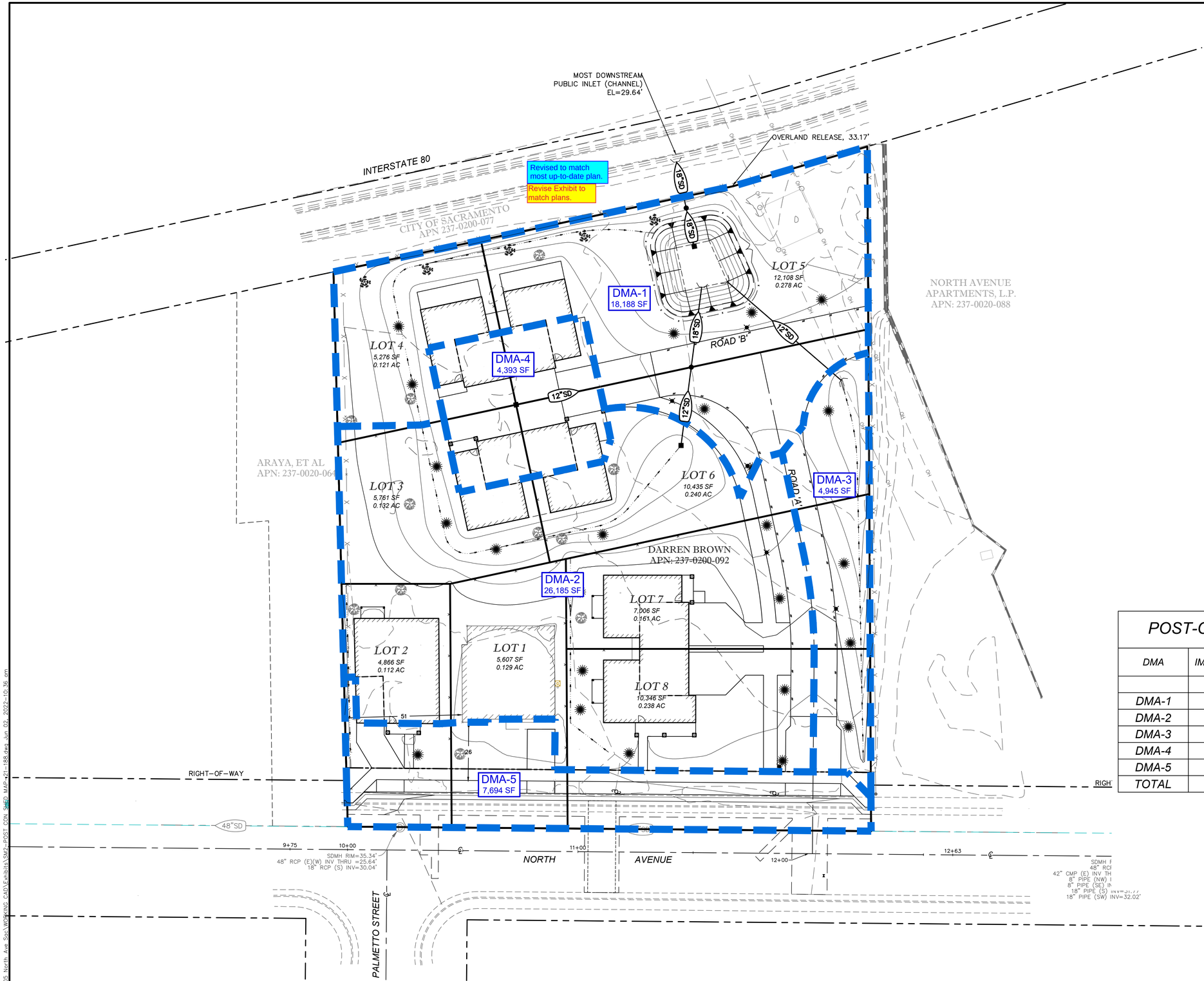

LEGEND

- DRAINAGE AREA DESIGNATIONS AND AREA — DMA-1, 3,181 SF
- DRAINAGE AREA BOUNDARY
- OVERLAND RELEASE

POST-CONSTRUCTION SHED AREAS (SF)

DMA	IMPERVIOUS	PERVIOUS	TOTAL	% IMPERVIOUS
	SF	SF	SF	
DMA-1	5,369	12,819	18,188	29.52%
DMA-2	10,313	15,872	26,185	39.39%
DMA-3	1,451	3,494	4,945	29.34%
DMA-4	4,393	0	4,393	100.00%
DMA-5	5,487	2,207	7,694	71.32%
TOTAL	27,013	34,392	61,405	43.99%

APPR'D | BY | DATE | REVISION | NO. | CHECK: BY MJW | DESIGN MJW | DRAWN DCJ | QUANT. | MJW | ORIGINAL SCALE IS IN INCHES 0 1 2

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ON-SITE IMPROVEMENT PLANS FOR
905 NORTH AVENUE
SACRAMENTO, CA 95838
APN: 237-0200-092

POST-CONSTRUCTION SHED MAP

Sheet 2 of 2
06/02/2022

CWE-RFE PROJECT NO. 21-188 – 1905 NORTH AVENUE, SACRAMENTO, CA 95838

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APPENDIX C

MISCELLANEOUS DOCUMENTATION

is required, it may also include the onsite project drainage design, eliminating the requirement for a separate onsite drainage study.

For onsite drainage studies, the designer may use either a static or dynamic analysis for mitigation sizing and drainage system design as described in the Sections 3.1.1, 3.1.2 and 3.1.3. The same method (either static or dynamic) must be used for the project's entire drainage analysis. Any required drainage design study shall be completed and approved prior to the approval of onsite plans and shall demonstrate conformance with mitigation (Section 3.2.1), finished floor (Section 3.5) and drain pipe criteria (Section 3.6).

An onsite drainage study shall include the following (at a minimum):

- A written description of the project.
- Reference to the City drainage basin that contains the project and regional study if applicable.
- Elevation datum used in study and for all referenced information.
- 10 and 100-year event tailwater elevations and sources.
- Summary of proposed drainage improvements.
- Attached excerpts of studies and other information that may be referenced.
- Summary of the methods used for the drainage study.
- Copies of calculations, spread sheets or computer models.
- An exhibit that:
  - Depicts existing and proposed impervious areas.
  - Shows proposed detention methods and locations including the volume of storage provided.
  - Depicts the onsite drainage system and connection points to the City system; including drainage inlet and manhole locations; and pipe lengths, sizes, slopes and invert elevations.
  - Denotes the elevation and location of the controlling overland release point(s) on the City drainage system. See Section 11.1.3 of the DPM for a definition of overland release point.
  - Depicts onsite drainage shed areas, includes overland release arrows to the public right-of-way and calls out drainage shed breakpoint elevations.
  - Denotes finished floor elevations for all proposed buildings.

3.1.1 Onsite Project Storage Method (Static Analysis)

Projects required to provide drainage mitigation (see Section 3.2.1), not performing a dynamic analysis, shall use the following procedure to size the detention volume and outlet orifice:

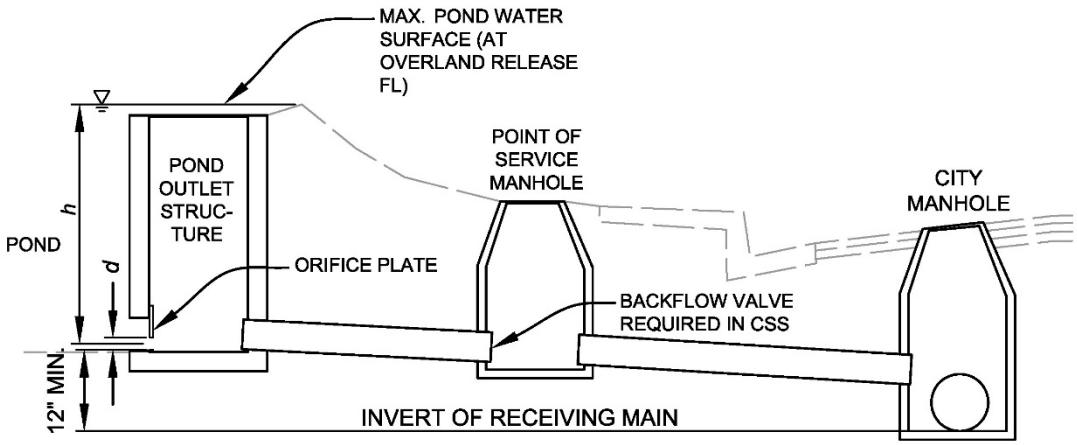
1. If required by the DOU, the designer must calculate and replace the volume of storage removed by the project at and below the existing 100-year event hydraulic grade line (HGL) of the City's drainage system, in addition to mitigating for increased imperviousness.
2. To mitigate for increased imperviousness, determine which City drainage basin the project resides in (**Figure 1**) and the associated storage required per acre of increased imperviousness for the 100-year event (as specified in **Figure 10**).
3. Determine the additional acreage of impervious surface resulting from the project. All surfaces shall be considered completely pervious or impervious. Impervious surfaces generally include

roof-tops and traditional pavement. Green roofs, pervious pavement, gravel, pavers with pervious base and joints shall be considered entirely pervious.

4. Multiply the additional impervious area by the 100-year event storage required per acre. If required, add to the flood replacement volume determined in step 1. The storage volume shall be completely contained at least one-foot above the Invert elevation of the receiving City main.
5. If a portion of the 100-year event detention volume is being stored within vehicular and/or pedestrian access surfaces, calculate the 10-year event storage volume and ensure it is completely contained within underground pipes and/or designated detention facilities. To determine the 10-year event storage volume, multiply the additional impervious area by the 10-year event storage required per acre for the basin (as specified in **Figure 10**).
6. Determine the orifice diameter (d) in inches for metering the stored discharge to the City drainage system (see Equation 3-1 and Figure 3-1):
7. Calculate the maximum head (h) in feet upstream of the orifice, by subtracting the elevation at the center of the orifice from the overland release flow line elevation for the project site (see Figure 3-1),
8. Determine orifice flow (Q) in CFS, by multiplying the Nominal Capacity of the City drainage basin (as specified in **Figure 10**) by the entire area draining to the detention pond,
9. Determine the orifice diameter in inches using Equation 3-1.

Equation 3-1 $$d = 6.17\sqrt{\frac{Q}{\sqrt{h}}}$$

Figure 3-1 Onsite Project Storage Discharge



3.1.2 Rational Method (Static Analysis)

Projects required to provide calculations sizing the onsite drainage system pipes (see Section 3.6), not performing a dynamic analysis, shall use the rational method as specified below; only a 10-year event storm analysis is required.

The 10-year event starting HGL elevation shall be obtained as follows:

- For gravity flow situations without onsite detention, the starting HGL shall be obtained from a previously approved City storm drain master plan that includes the project site. If an approved master plan does not exist, assume the HGL is 0.5-feet above the most downstream adjacent City drainage inlet grate elevation. If there is no gutter, assume the HGL is the lowest adjacent street or alley surface elevation fronting the project site.
- For projects that include onsite dry detention areas, assume the starting HGL for each pipe segment connected to a detention facility is the invert elevation at the segments point of connection to the facility. For onsite detention areas that include a permanent pool, the starting HGL for each pipe segment connected to the pool, is the permanent pool water surface elevation.

Drainage studies utilizing the rational method shall demonstrate all proposed private "drainage pipe" meets the criteria specified in Section 3.6 of this manual, and shall include:

1. Applicable runoff for drainage shed areas using Equations 3-2 & 3-3, and
2. 10-year event HGL throughout the analyzed system utilizing Manning's equation

Equation 3-2 $$Q = CiA_S$$

Equation 3-3 $$i = at^b$$

Where:

Q = Peak flow rate to a particular node (CFS)
C = Runoff coefficient (unit-less, Refer to Table 3-1)
i = Rainfall intensity (inches/hour)
A_S = Shed area draining to a particular Node (acres)
a = Rainfall intensity coefficient = 8.10 (10-year event) and 14.465 (100 -year event)
b = Rainfall intensity coefficient = -0.573 (10-year event) and -0.602 (100-year event)
t = Time of concentration (minutes) = Inlet Time + Time thru pipe/channel to a particular Node (Refer to Table 3-1 for Inlet Time)

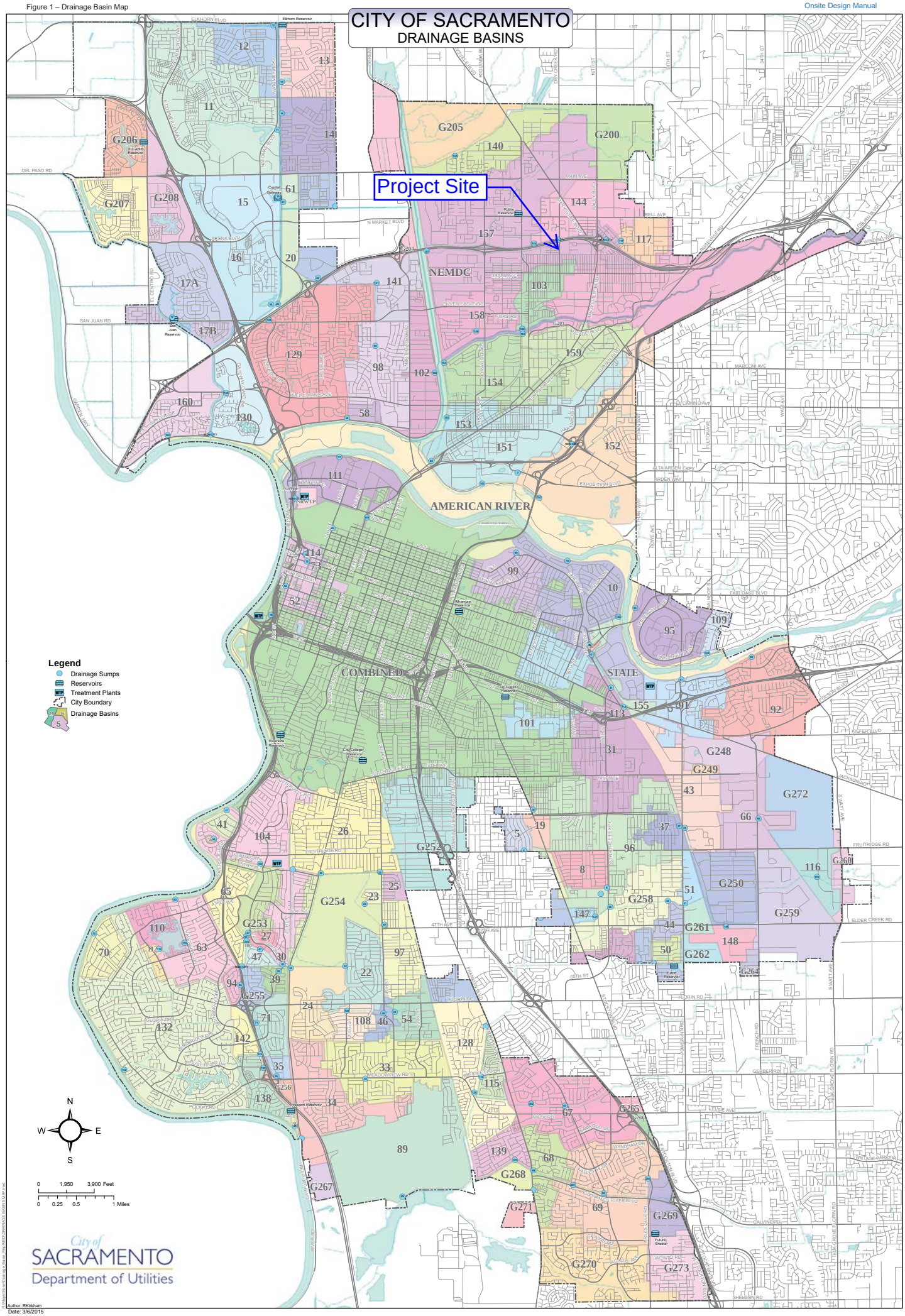
Designer shall use an area weighted average of pervious and impervious areas for calculating the C factor and Inlet Time.

Table 3-1 Runoff Coefficients and Inlet Times

Imperviousness/ Land Use	Runoff Coefficient C	Inlet Time t_i
Proposed/Existing Development		
Impervious areas	0.95	5
Pervious areas	0.40	10

3.1.3 Onsite Computer Model (Dynamic Analysis)

Projects may use a computer dynamic model for sizing onsite detention and/or drainage pipe. The model results shall demonstrate that finished floor elevations meet the requirements specified in Section 3.5 and that any proposed drainage pipe meets the criteria specified in Section 3.6.



Author: RKirkham
Date: 3/6/2015

Basin	Nominal Capacity CFS/AC	Storage per Acre of Increased Imperviousness (Cubic Feet)	
		100-Year	10-Year
138	0.14	8,900	4,450
139	0.17	7,900	3,950
140	0.21	6,700	3,450
141	0.3	5,300	2,700
142	0.25	6,000	3,050
144	0.31	5,200	2,600
147	0.1	10,600	5,500
148	0.37	4,600	2,250
149	UP	NA	NA
151	0.26	5,800	2,950
152	0.23	6,300	3,250
153	0.14	8,900	4,450
154	0.13	9,300	4,700
155	0.26	5,800	2,950
157	0.2	7,000	3,600
158	0.1	10,600	5,500
159	0.05	12,800	7,500
160	0.46	3,800	1,990
161	UP	NA	NA
G200	0.2	7,000	3,600
G201	0.2	7,000	3,600
G204	0.1	10,600	5,500
G205	0.1	10,600	5,500
G206	NN	10,600	5,500
G207	NN	10,600	5,500
G208	NN	10,600	5,500
G209	0.1	10,600	5,500

Basin	Nominal Capacity CFS/AC	Storage per Acre of Increased Imperviousness (Cubic Feet)	
		100-Year	10-Year
G248	0	15,000	10,500
G249	0	15,000	10,500
G250	0.1	10,600	5,500
G251	0.2	7,000	3,600
G252	0.08	11,600	6,200
G253	0.13	9,300	4,700
G254	0.12	9,700	4,950
G255	0.2	7,000	3,600
G256	0.12	9,700	4,950
G257	0.12	9,700	4,950
G258	0.2	7,000	3,600
G259	0.2	7,000	3,600
G260	0.2	7,000	3,600
G261	0.2	7,000	3,600
G262	0.15	8,600	4,300
G263	0.2	7,000	3,600
G264	0.2	7,000	3,600
G265	0.2	7,000	3,600
G266	0.11	10,200	5,200
G267	0.1	10,600	5,500
G268	0.17	7,900	3,950
G269	0.48	3,700	1,950
G270	0.17	7,900	3,950
G271	0.2	7,000	3,600
G272	0	15,000	10,500
G273	0.5	3,700	1,900
CSS	0.18	7,600	3,800

NN = North Natomas 0.1cfs/ac - Mitigate increase in impervious area relative to approved basin wide master plan at 0.1cfs/ac

NN4 = North Natomas 0.4cfs/ac - Mitigate increase in impervious area relative to approved basin wide master plan at 0.4cfs/ac

UP = Underpass - Do not drain to these basins

Note:
100-year event volume must be contained onsite and may include parking lot storage or other surface flooding.
10-year event volume must be completely contained in underground pipe and/or within a detention facility.

11.3.5.2 Exemptions

A Drainage Design Report will not be required when:

1. An approved Drainage Study already exists that includes the Project, which is consistent with this Section as determined by DOU,
2. Project is consistent with site runoff and storage anticipated by existing Drainage Study,
3. All applicable public drainage improvements to be constructed by the Project are defined in existing Drainage Study and consistent with Project, and
4. All applicable improvements identified by existing Drainage Study to serve or mitigate for potential impacts from Project are in-place or will be constructed by Project.

   Or,
5. Project does not require public drainage improvements.

11.3.5.3 Conformance with Plans

Infrastructure in Drainage Design Report shall be based on existing improvements and those to be constructed by Project. During the course of Project design, if the Designer modifies the street alignment, lot configuration, impervious area, land use, length, size and alignment of the storm drain pipes, location of a Detention Pond or pump station, On-site storage volume, Stormwater quality measures, etc., the Drainage Design Report shall be revised to reflect these changes. In all cases, the accepted Plans shall match the current accepted Drainage Design Report.

11.3.5.4 Modification of Past Study

If the Project is included in, but does not conform to an existing Drainage Study, the existing Drainage Study must be updated to account for all changes, such as land use, imperviousness, slope, routing, etc.

1. If the Drainage Study utilizes the Rational Method, and the Designer elects to use the Rational Method, proceed to Section 11.3.5.5,
2. If the Drainage study utilizes a dynamic model, proceed to Section 11.3.5.6.

11.3.5.5 Level One - Rational Method

For Projects of less than 10 acres, Designer may elect to analyze Stormwater runoff and routing using the Rational Method. The Rational Method may not be used for Projects with public Detention Ponds or pump stations, or Projects consisting of more than 10 acres including all phases.

Downstream 10 and 100 Year Event HGLs shall be based on an existing Study, if available. If no Study exists for downstream connection, 10 and 100 Year Event HGLs shall be assumed as 0.5-feet and 1.0-feet, respectively above adjacent drain inlet at the most downstream point analyzed.

Level One Drainage Design Report calculations shall include the following:

1. Applicable runoff for sub sheds using Equations 11-1 & 11-2, and
2. 10 & 100 Year Event HGL throughout analyzed system utilizing Manning's equation

Equation 11-1 $Q = CiA_S$

Equation 11-2 $i = at^b$

Where:
Q = Peak flow rate to a particular node (CFS)
C = Runoff coefficient (*unit-less*, Refer to Table 11-1)
i = Rainfall intensity (inches/hour)
A_S = Shed area draining to a particular Node (acres)
a = Rainfall intensity coefficient = 8.10 (10 Year Event) and 14.465 (100 Year Event)
b = Rainfall intensity coefficient = -0.573 (10 Year Event) and -0.602 (100 Year Event)
t = Time of concentration (minutes) = Inlet Time + Time thru pipe/channel to a particular Node (Refer to Table 11-1 for Inlet Time)

Designer shall use a weighted average of pervious and impervious areas for calculating the C factor and Inlet Time.

The discharge Q for sites utilizing metered storage (refer to Onsite Design Manual) may be reduced to the peak discharge rate from the applicable Detention Ponds.

Table 11-1 Runoff Coefficients and Inlet Times

Imperviousness/ Land Use	Runoff Coefficient C	Inlet Time t_i
Proposed/Existing Development		
Impervious areas	0.95	5
Pervious areas	0.40	10

(use area weighted average)

11.3.5.6 Level Two – Dynamic Modeling

Designer shall analyze the Project Stormwater impact and any required mitigation using dynamic modeling for all Projects larger than 10 acres, and may elect to for smaller Projects. Model setup and report parameters shall be in accordance with applicable DOU model user guide. The latest version of the user guides may be obtained from DOU.

Drainage Design Reports in Basins that have a previously approved Storm Drain Master Plan shall utilize the model and software of the approved study. New drainage models shall use XPSWMM for the Separated Drainage System and InfoWorks for the Combined Sewer System.

11.3 DRAINAGE STUDIES

The maximum allowable 10 and 100 Year Event water surface and Overland Release elevations are different for a Greenfield Development versus an Infill Development. All Projects must also meet Existing Development and public safety criteria. Refer to Plate 11-2 MASTER PLANNING CRITERIA EXHIBIT.

Drainage Studies include Storm Drain Master Plans and Drainage Design Reports (Levels 1 or 2). Some Projects may require acceptance of a Storm Drain Master Plan in conjunction with a Tentative Map or other entitlement. DOU will also require acceptance of a Drainage Design Report in conjunction with the Plans for most Projects proposing public drainage improvements.

All Drainage Studies shall be submitted with a Drainage Study Checklist, stamped by a registered civil engineer. If items on the Checklist are deficient, the Drainage Study may be returned for correction without review.

Existing 100 Year Event Stormwater detention volume to be removed by Project shall be accounted for in Drainage Study and replaced as necessary, in addition to other mitigation measures required herein. Typical minor losses shall be disregarded (Refer to Section 11.4.5).

Elevations for Separated Drainage studies shall be tied to a City benchmark, Datum NAVD 88. Elevations for Combined Sewer studies shall be tied to a City benchmark, Datum NGVD 29.

If a Project is required to comply with Stormwater quality standards, detailed analysis and sizing calculations shall be included with the Drainage Study (Refer to Section 11.11). Drainage Studies need not include on-site privately maintained drainage pipes and appurtenances, except as applicable to mitigate Project impacts to the public drainage system. Requirements for the design of such On-Site drainage facilities and sizing of drainage services are covered by the Onsite Design Manual.

11.3.1 Greenfield Development

The 10 Year Event HGL shall be a minimum of 6-inches below all new DI Grates. The Finished Floor of new structures shall be at least 12-inches above the 100 Year Event HGL, and 18-inches above the Overland Release Point (Refer to Section 11.7).

11.3.2 Infill Development

The 10 Year Event HGL shall be at or below all new DI Grates placed in gutters. Refer to 11.3.7 for inlets placed in roadside ditches. The Finished Floor of new structures shall be at least 6-inches above the 100 Year Event HGL and 12-inches above the Overland Release Point (Refer to Section 11.7).

Table 3-2 Required Stormwater Quality Control Measures for Priority Projects

Priority Project Categories[1]	Required Stormwater Quality Control Measures				
	Source Control[2]	Hydromodification Control[3]	Low Impact Development Control	Treatment Control	Full Capture Trash Control[7]
Single Family Residential Impervious area ≥ 1 acre	X		X		X For projects with at least 10 du/acre[8]
Single Family Residential Gross Area ≥ 20 acres	X	X	X	X	
Multi-family Residential Impervious Area < 1 acre	X				
Multi-family Residential Impervious Area ≥ 1 acre	X	X	X	X	
Commercial/ Industrial Development[6] Impervious area < 1 acre	X				X For industrial projects where primary activities involve product manufacture, storage, or distribution. For commercial projects were primary activities involve sale or transfer of goods or services to consumers
Commercial/ Industrial Development[6] Impervious area ≥ 1 acre	X	X	X	X	
Automotive Repair Shops[6] Impervious area < 1 acre	X				
Automotive Repair Shops[6] Impervious area ≥ 1 acre	X	X	X	X	
Retail Gasoline Outlet[6] Impervious area < 1 acre	X				
Retail Gasoline Outlet[6] Impervious area ≥ 1 acre	X	X	X	X	
Restaurants Impervious area < 1 acre	X				
Restaurants Impervious area ≥ 1 acre	X	X	X	X	
Hillside Development Slope ≥ 25%	X	X	X	X	
Parking Lots[4][6] Impervious area < 5,000 square feet or 25 parking spaces	X				X For Public Transportation Stations, which are facilities or sites where public transit agencies' vehicles load or unload passengers or goods (e.g., bus stations and stops)
Parking Lots[4][6] Impervious area ≥ 5,000 square feet or 25 parking spaces	X	X	X	X	
Streets & Roads[5][6] Impervious area < 5 acres	X				
Streets & Roads[5][6] Impervious area ≥ 5 acres	X	X	X	X	

Table 3-3 Stormwater Quality Control Measure Selection Matrix

✓ **Required Based Upon Table 3-2** • **Acceptable Option** **"NA" Not applicable or allowed**

Priority Project Category [a]	**Residential**			**Commercial/Industrial**							
Control Measure	**Single Family Residential Impervious area ≥ 1 ac**	**Single Family Residential Gross area ≥ 20 ac**	**Multi-family Residential Impervious area ≥ 1 ac**	**Commercial Impervious area ≥ 1 ac**	**Auto Repair Shops Impervious area ≥ 1 ac**	**Retail Gasoline Outlets Impervious area ≥ 1 ac**	**Restaurants Impervious area ≥ 1 ac**	**Industrial Impervious area ≥ 1 ac**	**Hillside Developments ≥ 25% slope**	**Parking lots [b] ≥ 5,000 sf or 25 spaces**	**Streets/Roads [c] Impervious area ≥ 5 ac**
Source Control [d]	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Efficient Irrigation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fueling Areas	NA	NA	NA	✓	✓	✓	✓	✓	✓	NA	NA
Landscaping	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Loading Areas	NA	NA	NA	✓	✓	✓	✓	✓	✓	NA	NA
Outdoor Storage Areas	NA	NA	NA	✓	✓	✓	✓	✓	✓	NA	NA
Outdoor Work Areas	NA	NA	NA	✓	✓	✓	✓	✓	✓	NA	NA
Storm Drain Markings and Signs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Vehicle/Equipment Wash Areas	NA	NA	✓	✓	✓	✓	✓	✓	✓	NA	NA
Waste Management Areas	NA	NA	✓	✓	✓	✓	✓	✓	✓	✓	NA
Hydromodification Control, LID, and Treatment Control [e][f]	**(LID Only)**	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Alternative Driveways	•	•	•	NA	NA	NA	NA	NA	•	NA	NA
Capture and Re-Use	•	•	•	•	•	•	•	•	•	NA	NA
Compost-Amended Soil	•	•	•	•	NA	NA	•	•	NA	•	NA
Constructed Wetland Basin	•	•	•	•	NA	NA	•	•	NA	•	•
Disconnected Pavement	•	•	•	•	•	•	•	•	•	•	•
Disconnected Roof Drains	•	•	•	•	•	•	•	•	•	NA	NA
Green Roof	NA	NA	NA	•	•	•	•	•	•	NA	NA
Infiltration Basin	•	•	•	•	NA	NA	•	NA	NA	•	•
Infiltration Trench	•	•	•	•	NA	NA	•	NA	NA	•	•

APPENDIX D

SUPPORTING CALCULATIONS

Post-Construction Design Flows (10-yr Storm)

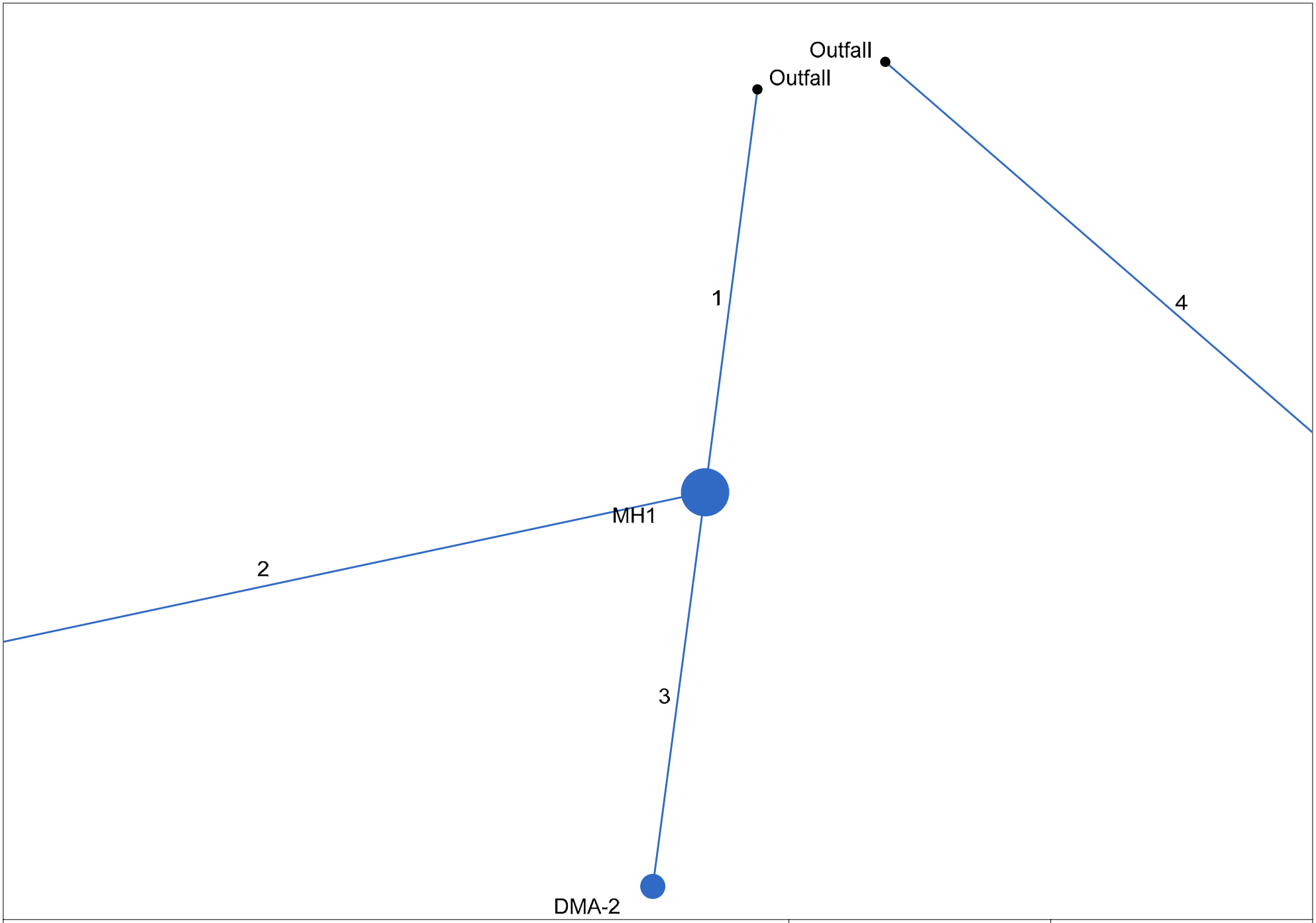
Project:	905 North Avenue
Location:	905 North Avenue, Sacramento, CA 95838
Jurisdiction:	City of Sacramento
Designer:	MJW
Date:	6/2/2022

Drainage Shed	Associated Node	Shed Area		Node Tributary Area		Shed Percent Impervious	Shed Weighted Runoff Coefficient	Shed Weighted Inlet Time	Rainfall Intensity[1]	10-yr Flow[2]
		sf	acre	sf	acre	%	C	t (min)	in/hr	CFS
DMA-01	A1	18,188	0.418	53,711	1.233	30%	0.562	8.524	2.373	0.557
DMA-02	A2	26,185	0.601	26,185	0.601	39%	0.617	8.031	2.455	0.910
DMA-03	A3	4,945	0.114	4,945	0.114	29%	0.561	8.533	2.371	0.151
DMA-04	A4	4,393	0.101	4,393	0.101	100%	0.950	5.000	3.221	0.309

[1]Rainfall Intensity based on Equation 3-3 of the City of Sacramento DOU Onsite Design Manual

[2]Flow equation based on Equation 3-2 of the City of Sacramento DOU Onsite Design Manual

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 905 North Ave.stm	Number of lines: 4	Date: 6/2/2022

RFE Data

Line No.	Inlet ID	Line ID	DnStm Ln No	Flow Rate (cfs)	Capac Full (cfs)	Line Size (in)	Line Length (ft)	Invert Up (ft)	Invert Dn (ft)	Line Slope (%)	Gnd/Rim El Up (ft)	Cover Up (ft)	Runoff Coeff (C)	i Sys (in/hr)	Drng Area (ac)	Total Area (ac)	Tc (min)	Pipe Travel (min)	n-val Pipe	Incr Q (cfs)
1	MH1	D4	Outfall	1.22	9.10	18	35.016	25.81	25.46	1.00	32.74	5.43	0.00	0.00	0.00	0.00	8.5	0.85	0.015	0.00
2	DMA-4	D5	1	0.31	3.09	12	77.760	26.59	25.81	1.00	32.86	5.27	0.00	0.00	0.00	0.00	5.0	3.28	0.015	0.31
3	DMA-2	D6	1	0.91	3.12	12	34.268	26.16	25.81	1.02	31.10	3.94	0.00	0.00	0.00	0.00	8.0	0.49	0.015	0.91
4	DMA-3	D3	Outfall	0.15	8.90	12	65.000	30.87	25.46	8.32	32.00	0.13	0.00	0.00	0.00	0.00	8.5	5.67	0.015	0.15

Project File: 905 North Ave.stm | Number of lines: 4 | Date: 6/2/2022

NOTES: Known Qs only. ; ** Critical depth

RFE Data

HGL Up (ft)	HGL Dn (ft)	Rim-Hw (ft)	Vel Up (ft/s)	Vel Dn (ft/s)	Hw (ft)	Crit Depth (ft)
26.22	25.83	6.52	3.09	3.58	0.41	0.41
26.82 j	26.22	6.04	2.28	1.01	0.23	0.23
26.56 j	26.22	4.54	3.11	2.97	0.40	0.40
31.03	25.55	0.97	1.88	4.25	0.16	0.16

Project File: 905 North Ave.stm | Number of lines: 4 | Date: 6/2/2022

NOTES: ** Critical depth

WATER STUDY
FOR
905 NORTH AVENUE

Sacramento, CA 95838

June 3, 2022

Prepared by,
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Ph 916-772-7800
CWE-RFE Project No. 21-188

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A. PROJECT LOCATION

The proposed residential grading, drainage, and utilities project is located east of the intersection of North Avenue and Rio Linda Boulevard, just south of Interstate 80 in the City of Sacramento, State of California, 95838. The approximate coordinates of the project site are latitude 38.640581° north and longitude -121.445747° west. The project property is about 1.41 acres and has APN 237-0200-092. Approximately 1.32 acres will be disturbed as part of this project, which includes off-site improvements encompassing the widening of North Avenue. The project's location is shown on the Vicinity Map in Appendix A.

B. EXISTING SITE CONDITIONS

In its existing condition, the site is partially developed with a house on-site with driveway access to North Avenue. Additionally, there are two wooden sheds and one metal shed north of the existing house. There is an electrical transmission tower located at the northeast corner of the property which includes a 100-foot-wide easement that encumbers a portion of the eastern part of the site. The southern property line extends 20 feet beyond the existing right-of-way, and there is rolled curb, gutter, and sidewalk along the project frontage, between the City right-of-way and the southern property line. The remainder of the site is undeveloped and contains a fair number of trees and short, dead grass. The existing house has a residential water connection to the City main in North Avenue.

The City water main varies from 8" to 6" in North Avenue and runs west to east, south of the road centerline. There is an existing fire hydrant at the southwest corner of North Avenue and Palmetto Street where a water supply test was performed by the City, and where the system flows and pressures are to be assumed. The water main is 8" in diameter for the majority of the frontage, and reduces to a 6" line at a tee near the southeast corner of the property. The Project Water Map, in Appendix B shows existing conditions on the project site.

Table 1 below summarizes the surrounding properties.

Table 1: Site Description (Surrounding Areas)

North	City-owned concrete channel, beyond which is Interstate 80
South	North Avenue, beyond which are residential properties
East	North Avenue Apartments
West	Residential property

C. PROPOSED PROJECT DESCRIPTION

This project proposes to improve the site by subdividing the property into 8 lots and constructing residential structures on each lot (except the lot with the existing house). Additionally, a private access drive, easement, and adjacent pedestrian sidewalk will be constructed to provide access and fire protection to the landlocked lots. North avenue will be widened to the standard 35.5' half width right-of-way of a minor collector per City of Sacramento standards. This will include additional paving and rolled curb, gutter, and detached sidewalk within the expanded public right-of-way. The existing house lot and one other lot will have direct access to North Avenue, while the remaining 6 will connect to the private access drive, which will have driveway access to North Avenue at the southeast corner of the property. In addition to the aforementioned improvements, the project proposes landscaping and underground water, sanitary sewer, and drainage infrastructure.

The project's water improvements include a private 6" water main that will connect to the existing 6" water main in North Avenue. This main will be shared by 6 of the 8 proposed residential lots with private water services to each house. Additionally, the undeveloped lot fronting North Avenue will connect its own private service to the 8" portion of the public main in the street. The final lot, which already has a constructed house, currently has a water service connection installed. In addition to the water services, two private fire hydrants are proposed along the shared private access drive, coming off the proposed 6" private line. See section F for an in-depth discussion of the proposed water improvements. Other underground infrastructure will include sanitary sewer lines, as well as minimal storm drain piping to convey flows to the basin.

The total area to be disturbed will be approximately 1.32 acres. The Site plan in Appendix A shows the proposed site and the Project Water Map in Appendix B shows proposed water system.

D. PURPOSE OF REPORT

The purpose of this report is to present the design of the private water system and to demonstrate that the design complies with the City of Sacramento project conditions of approval dated July 9, 2020 regarding water system requirements.

The report is divided into four (4) main parts:

1. Description of the existing water system conditions.
2. Description of proposed water system, evaluation of post-construction water demand, and analysis of proposed water distribution system.
3. Conclusions based on water analysis.
4. Recommendations.

E. EXISTING WATER CONDITIONS

CWE-RFE used topographic survey data from a survey performed by Michael Dequine and Associates, Inc. in April, 2018 as well as a water supply test performed by the City of Sacramento Department of Utilities on March 11, 2022. Using this data, CWE-RFE determined the existing sizes and layouts of the public water system along with existing flow and pressure conditions. The City of Sacramento tested two fire hydrants in the vicinity of the project to determine static and residual pressures and associated flows. The existing conditions can be seen on the Project Water Map in Appendix B. The City flowed hydrants numbers 401 and 501 during their test. For the purposes of this study, the basis for the water analysis will be the design water supply data, provided by the City. The public water map and water supply test results can be seen in Appendix C. A summary of these results can be seen in Table 1 below.

Table 1: Water Supply Test Results (Baseline)

Hydrant Condition	Hydrant Number	Static Pressure (PSI)	Residual Pressure (PSI)
Residual	402	50	32

Table 2: Water Supply Test Results (Flowed)

Hydrant Condition	Hydrant Number	Pitot Pressure (PSI)	Calc. Flow @ Pressure (GPM)	Flow @ 20 PSI (GPM)
Flowed	401	16	1805	1750
Flowed	501	9	503	488

Table 3: Design Water Supply Data

Static Pressure (PSI)	Residual Pressure (PSI)	Total Flow @ Residual (GPM)	Total Flow @ 20 PSI (GPM)
37	19	2300	2200

update per new Water Supply Test

Tables have been updated per new Water Supply test

F. POST-CONSTRUCTION WATER CONDITIONS

The post-construction water distribution system was designed to comply with the City of Sacramento project conditions of approval dated July 9, 2020. According to these conditions, the water system must satisfy the more critical of the following two conditions:

1. At maximum day peak hour demand, the operation or "residual" pressure at all water service connections shall be at least 30 pounds per square inch.

2. At average maximum day demand plus fire flow, the operation or "residual" pressure in the area of the fire shall not be less than 20 pounds per square inch.

In order to show the adequacy of the proposed system to meet these requirements, the existing and proposed water layouts were modeled in EPANET 2.2 and the specific demands were applied to points along the system. This was modeled by adding a "pump" to the system at the location of fire hydrant number 401 with a pump curve equivalent to the flows and pressures supply test in Table 3. From there, the existing and proposed water system at each system junction. EPANET then automatically calculates friction los Williams method during the analysis, and minor loss coefficients were added losses due to valves, bends, etc. The water demand assumptions are as out specific cases noted in the conditions of approval.

attach current CA Fire Code Table and highlight/ show how the 500 gpm is obtained. Please note if 500gpm is the reduced fireflow because bldgs are spinklered, include the sprinkler demands in the assessment.

CA Fire Code Table has been added to Appendix C. Fire Sprinkler Plans by architect also provided.

For the first case, the assumed maximum day peak hour demand for each re is 50 GPM. For the second case, the assumed average maximum day dema water service is 10 GPM with a fire flow of 500 GPM (per California Fire Cod

For the first case model, a demand of 50 GPM was placed on each node repre connection and the model was run to determine the pressures at each no analysis can be seen in Table 4 below as well as in Appendix D.

Table 4: Case 1 Results

Service ID	Demand (GPM)	Residual Pressure (PSI)
SERV1	50	36.90
SERV2	50	36.04
SERV3	50	36.62
SERV4	50	36.93
SERV5	50	36.93
SERV6	50	36.92
SERV7	50	36.91

Based on these results, the water system meets the requirements for maintaining a minimum of 30 PSI for each water service connection at maximum peak hour demand.

For the second model, a demand of 10 GPM was placed on each node representing a water service connection and a fire flow of 500 GPM was placed on the most downstream node to represent a worst-case condition during a fire. The results of this analysis can be seen in Table 5 below as well as in Appendix D.

Table 5: Case 2 Results

Service ID	Demand (GPM)	Residual Pressure (PSI)
SERV1	50	36.64
SERV2	50	33.53
SERV3	50	33.16
SERV4	50	31.02
SERV5	50	30.94
SERV6	50	30.39
SERV7	550	30.33

Based on these results, the water system meets the requirements for maintaining a minimum of 20 PSI in the area of fire.

G. CONCLUSIONS

- The water distribution system will maintain the required pressures of the project conditions of approval for the two cases outlined by the City of Sacramento Department of Utilities.

H. RECOMMENDATIONS

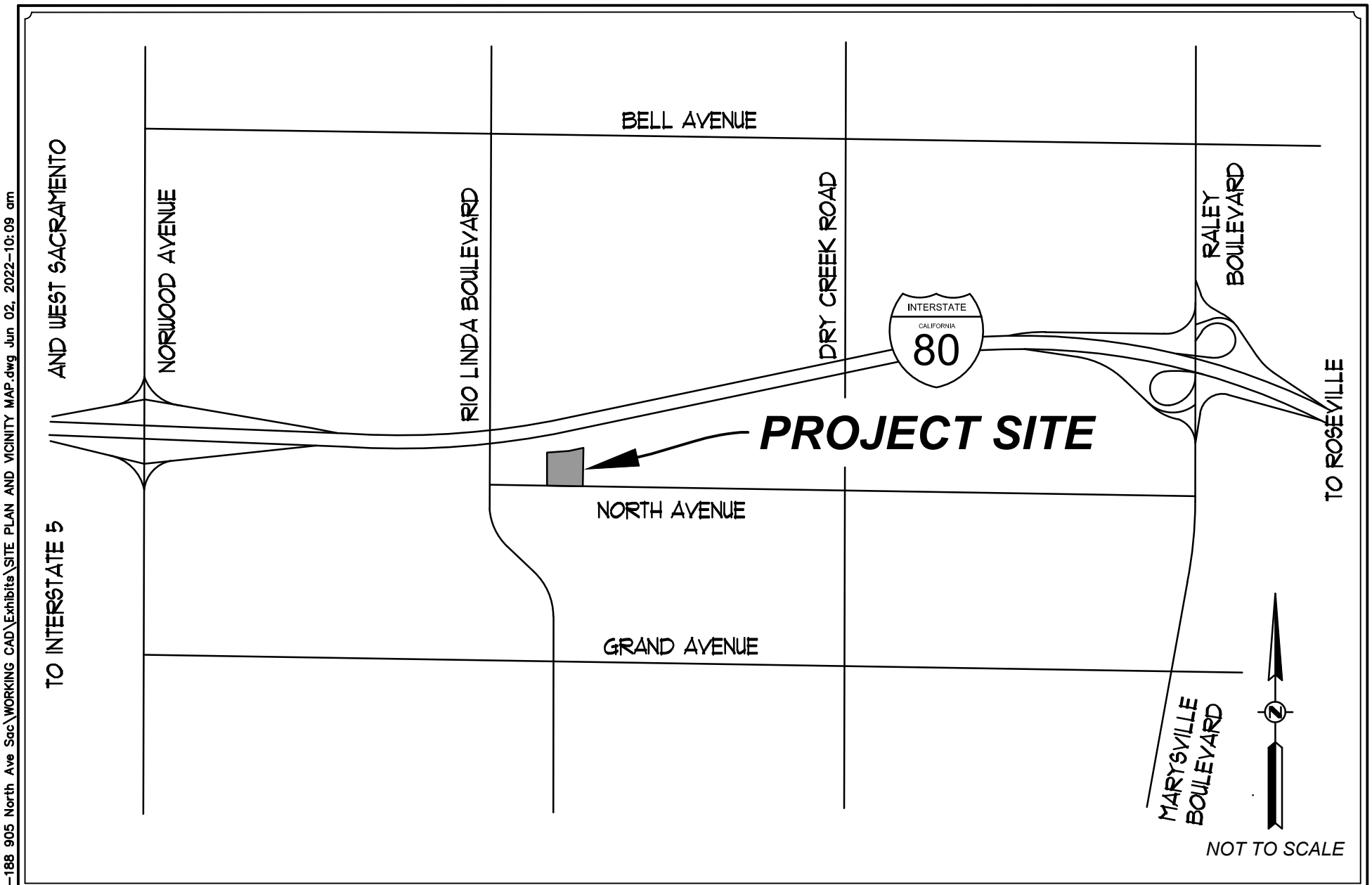
In order to sufficiently account for the performance of the proposed water distribution system, CWE-RFE recommends that the final design and construction include water improvements consistent with the 905 North Avenue Improvement Plans and the conclusions outlined in this water study.

I. REFERENCES

- EPANET 2.2
- City of Sacramento Project Conditions of Approval for 905 North Avenue, dated July 9, 2020.
- California Fire Code 2019

APPENDIX A

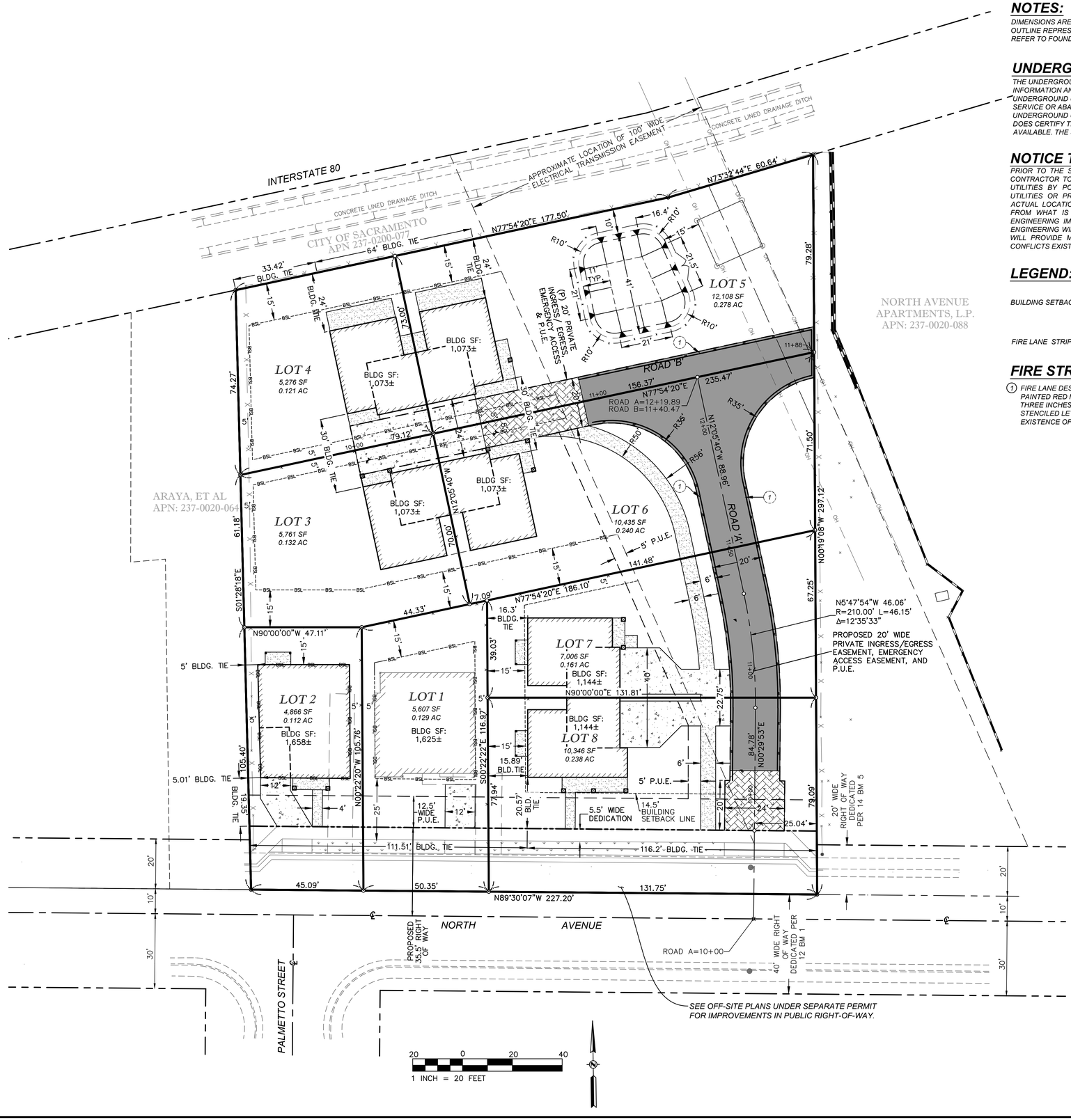
VICINITY MAP AND SITE PLAN EXHIBITS



905 NORTH AVENUE
SACRAMENTO
CALIFORNIA

VICINITY MAP

CWE RFE
2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-7800 www.cwecorp.com



NOTES:

DIMENSIONS ARE TO BOTTOM FACE OF CURB UNLESS SPECIFIED OTHERWISE. BUILDING OUTLINE REPRESENT THE OUTER-MOST ELEMENT OF BUILDINGS. CONTRACTOR SHALL REFER TO FOUNDATION PLANS FOR CONSTRUCTION OF FOUNDATION AND BUILDING SLAB.

UNDERGROUND UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

NOTICE TO CONTRACTOR - ORDER OF WORK:

PRIOR TO THE START OF ANY CIVIL WORK, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL EXISTING UTILITIES BY POTHOLING AT ALL POINTS OF POTENTIAL CONFLICT WITH PROPOSED UTILITIES OR PROPOSED POINTS OF CONNECTION WITH EXISTING UTILITIES. IF THE ACTUAL LOCATIONS OF THE EXISTING UTILITIES FOUND IN THE FIELD ARE DIFFERENT FROM WHAT IS SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT RFE ENGINEERING IMMEDIATELY AND PROVIDE THE ACTUAL LOCATION INFORMATION. RFE ENGINEERING WILL VERIFY IF THERE ARE ANY CONFLICTS WITH THE IMPROVEMENTS AND WILL PROVIDE MODIFICATIONS TO THE DESIGN TO MITIGATE THE CONFLICTS IF ANY CONFLICTS EXIST.

LEGEND:

BUILDING SETBACK ——BSL——BSL——BSL——

FIRE LANE STRIPING ————————

FIRE STRIPING KEY NOTE:

(1) *FIRE LANE DESIGNATION STRIPE AS DELINEATED ON THE DRAWINGS. CURBS SHALL BE PAINTED RED MARKED BY WHITE LETTERING "FIRE LANE - NO PARKING" A MINIMUM OF THREE INCHES TALL WITH A ½ INCH WIDE MINIMUM STROKE. THE INTERVAL BETWEEN STENCILED LETTERING SHALL BE ADEQUATE TO INFORM THE PUBLIC OF THE EXISTENCE OF THE FIRE LANE BUT IN NO EVENT SHALL THE INTERVAL EXCEED 50 FEET.*

NO.	REVISION	DATE	BY	APPRV'D

	BY	CHECK
DESIGN	MJW	MJW
DRAWN	DCJ	MJW
QUANT.		

ORIGINAL SCALE IS IN INCHES (0, 1, 2)

REGISTERED PROFESSIONAL ENGINEER
MICHAEL J. WILSON
No. C 92447
PRELIMINARY
NOT FOR CONSTRUCTION
OF CALIF.

CWE-RFE
2260 Douglas Blvd, Suite 160, Roseville, CA 95661
Ph: 916-772-1600 www.cweconsys.com

PROPERTY OWNER / DEVELOPER
NERRADSCALI CORPORATION
3960 KINGSBARNS DRIVE
ROSEVILLE, CA 95747

CONTACT: DARREN BROWN
PH: (916) 300-7962
EMAIL: DARRENBBROWN@COMCAST.NET

ON-SITE IMPROVEMENT PLANS FOR
905 NORTH AVENUE
SACRAMENTO, CA 95838
APN: 237-0200-092

HORIZONTAL CONTROL PLAN

Sheet
C5

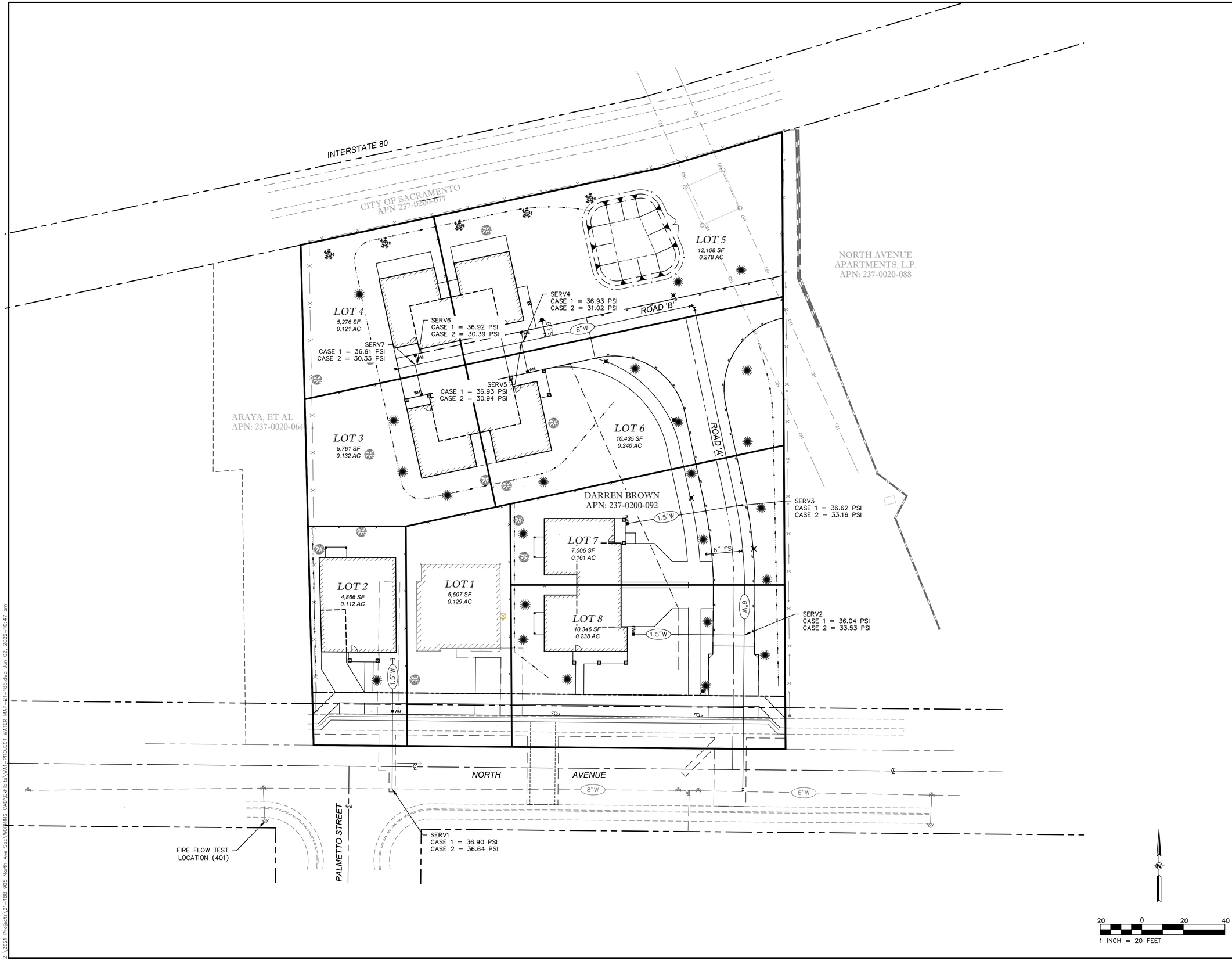
6 of 13

06/02/2022

811
Know what's **below.**
Call before you dig.
or (800) 227-2600

APPENDIX B

PROJECT WATER MAP



NO.	REVISION	DATE	BY	APPR'D

BY	CHECK
DESIGN MJW	MJW
DRAWN DCJ	MJW
QUANT.	

0 1 2 ORIGINAL SCALE IS IN INCHES

REGISTERED PROFESSIONAL ENGINEER
MICHAEL J. WILSON
No. C 92447
PRELIMINARY
NOT FOR CONSTRUCTION
OF CALIF.

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3960 KINGSBARNS DRIVE
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EMAIL: DARRENBBROWN@COMCAST.NET

ON-SITE IMPROVEMENT PLANS FOR
905 NORTH AVENUE
SACRAMENTO, CA 95838
APN: 237-0200-092

PROJECT WATER MAP

Sheet
1 of 1
06/02/2022

CWE-RFE PROJECT NO. 21-188 – 1905 NORTH AVENUE, SACRAMENTO, CA 95838

Z:\2021 Projects\21-188 905 North Ave Sac\WORKING CAD\Exhibits\WA1-PROJECT WATER MAP-21-188.dwg Jun 02, 2022-10:47 am

APPENDIX C

MISCELLANEOUS DOCUMENTATION

WATER SUPPLY TEST - DEPARTMENT OF UTILITIES

City of Sacramento **Community Development Dept.** **300 Richards Blvd., 3rd Floor** **Sacramento, CA 95811**	WORK ORDER #: 558907 ANALYSIS FEE: $519.00 FIELD TEST FEE: $1,092.00 HYDRAULIC BOUNDARY CONDITION FEE: $615.00; optional see item (3) below.	WST NUMBER: 2201429 DATE PAID: 2.28.22 DATE PAID: 2.28.22 DATE PAID: TEST NUMBER: 1 of 1
CONTACT: Michael Wilson		
COMPANY: RFE Enginnering Inc	PHONE NUMBER: 916-772-7800	EMAIL:mwilson@rfeengineering.com
ADDRESS: 2260 Douglas Blvd, Ste 160 Roseville Ca 9566	OUNDARY CONDITION 905 North Ave ASSESSOR'S PARCEL NUMBER: 237-0200-092	

The undersigned agrees to the following items and conditions:

(1) The street address and/or parcel number shown above is correct

(2) Water supply data is developed from several sources of information which may include water supply test data, computer models, and pressure recording stations. The water supply data given is to be used for design purposes.

(3) Based on hydrant locations, test results may not provide accurate flow information at the point of connection, for a fee the City can provide the hydraulic analysis necessary to transfer the results to a single point of connection.

(4) Although the water supply data reported herein is believed to be accurate, the City makes no warranty, guaranty, certification or other representation of any kind that such data is accurate or correct, or that the pressures and/or flow rates reported herein can or will be maintained. The un ity, its officers and employees shall not be liable for any damages of any kind resulting fro n the water supply data reported herein by the undersigned or by any third party.

(5) When more than one water supply test has been performed, th e Plan Checker as to which water supply test is to be used.

(6) If the undersigned desires to witness the water supply test per check the box below:

☐ *I want to witness this water supply test, which will be sc of the Department of Utilities.*

(7) If the undersigned elects to hire a licensed engineer, at the un witness and certify the water supply test performed by the City, please check the box

☐ *At my expense, I will arrange for a licensed engineer to er supply test, which will be scheduled at the convenience of the Department of Utilities.*

Water Supply Test must be within 1 year. Retest per current WST method: Flow FH 402 R19, gauge nearby domestice/ fire service.

Water Supply Test was redone. New report added.

PRINT NAME: Michael Wilson SIGNATURE:

DATE: 1.20.22

DATE OF TEST: 3/11/2022 TIME OF TEST: 5:45 AM

WTR. MAIN SIZE: 8 TEST CONDUCTED BY: M.Farinias

	Hydrant Number	Map Page	Static Pres. (PSI)	Residual Pres. (PSI)	Pitot Pres. (PSI)	Outlet Dia. (Inches)	Coefficient C_1	Coefficient C_2	Calc. Flow @ Pres. (GPM)	Flow @ 20 PSI (G.P.M.)
Residual	402	R19	50	32						
Flowed	401	R19			16	4.5	0.90	0.83	1805	1750
Flowed	501	R19			9	2.5	0.90	1.00	503	488
Flowed										
Flowed										

* THE WATER SUPPLY TEST DATA IS NOT TO BE USED FOR THE DESIGN OF DOMESTIC WATER SYSTEMS.

* (STATIC PRES. - RESIDUAL PRES.) / (STATIC PRES. - 20 PSI) MUST NOT BE LESS THAN 25%. THEREFORE, THESE RESULTS ARE ONLY VALID FOR RESIDUAL PRESSURES LESS THAN 43 PSI

WATER SUPPLY DATA SUMMARY

	Design (1)
Static Pressure	37 PSI
Residual Pressure	19 PSI
Total Flow @ Residual	2300 G.P.M.
Total Flow @ 20 PSI	2200 G.P.M.

(1) The Design Water Supply Data reflects fluctuations and future demands on the water distribution system. It is to be used for design purposes.

50

VALVES

New ID	Old ID	Old Map	SizeOpen	Type	Turns	SVC Type	Location	SVC Address
101	101	39N		GTVLV			3' EE fence line of pumping station - 2' NN fence of Hwy 80	
102	94	39N		BLVLV			70' SSLL 4103 Rio Linda Blvd - 5'East of pole line	
103	109	39N		BLVLV			1'SS Fence Box Culvert - 1' W C/L Biketrail	
104	110	39N		ARVLV			64' NSPL Freeway - 2' W C/L Biketrail	
201	99	39N		GTVLV			17' North of hydrant 202 - 17' WEC May St	
202				SVVLV			21' SNC - 23' WEC May St	
203				SVVLV			26' SNC - 23' WEC of May St.	
301	111	40N		GTVLV			11' WEC Dry Creek Rd (S) - 12' SNC 4048 Dry Creek Rd	
302	110	40N		GTVLV			12' WEC Dry Creek Rd (S) - 15' SNC 4048 Dry Creek Rd	
303	127	40N		GTVLV			4' SSC O'Donnell Av - 16' WEC Haywood St	
304	136	40N		SVVLV			Dom Svc - 9' WEC Dry Creek Rd (S) - 90' NNC	4029 Dry Creek Road
305	128	40N		GTVLV			1' NSC Jean Av - 12' EWC Haywood St	
306	129	40N		GTVLV			8' SNPL Jean Av - 24' EWPL Haywood St	
401	111	39N		BLVLV			15' SSC North Av - 55' EEC Rio Linda Blvd	
402	95	39N		GTVLV			8' NSC North Av - 15' EWPL Rose St	
403	1	39N		GTVLV			11' NSC North Av - 4' EWPL Cypress St	
404	2	39N		GTVLV			11' NSC North Av - 14' EWPL Cypress St	
405	3	39N		GTVLV			9' NSC North Av - 142' WWC Cypress St	
406	112	39N		ARVLV			121' SSC North Av - 55' EEC Rio Linda Blvd (in MH)	
407	113	39N		BLVLV			12' WEC Rio Linda Blvd - 159' NNC Harris Av	
501	100	39N		GTVLV			10' NSC North Av - 11' EWC May St	
502	5	39N		GTVLV			5' NSC North Av - On WPL	
503	6	39N		GTVLV			10' SSC North Av - 11' WEPL Alley (Branch & May Sts)	
504	7	39N		GTVLV			9' SSC North Av - 4' WEPL Alley (May & Belden Sts)	
505	4	39N		GTVLV			12' SSC North Av - On WPL (Cypress & Branch Sts)	
506	1	40N		GTVLV			3' WEPL alley - 11' SSC North Av	
507				SVVLV			99' WWC of Branch St - 7' NSC of North Ave.	
601	109	40N		GTVLV			2' NSC Jean Ave - 3' WWC Dry Creek Rd	
602	130	40N		GTVLV			On SPL Jean Av - 19' EWPL Haywood St	
603	131	40N		GTVLV			7' NSC North Av - 8' WWC Haywood St	
604	106	40N		GTVLV			20' EWC Dry Creek Rd - 11' NSC North Av (E)	
605	137	40N		GTVLV			135' EEPL Haywood Av - 9' NSPL North Av	
606	107	40N		GTVLV			18' EWC Dry Creek Rd - 2' NSC North Av (E)	
607	108	40N		GTVLV			2' WEC Dry Creek Rd - 5' NSC North Av (E)	
608	2	40N		GTVLV			3'West of pole line - 11' SSC	
609	3	40N		GTVLV			12' SSC North Ave - 5'West of pole line	
610	4	40N		GTVLV			14' East of pole line - 7' NSC North Av	
701	10	39N		GTVLV			33'North of hydrant 202 - 39' EWC	
702	58	39N		GTVLV			2' NNC Harris Av - 3' WEPL Cypress St	
703	57	39N		GTVLV			34' EWC - 23'North of hydrant 702	
704	25	39N		GTVLV			5' WEPL Alley - 5' SSC Harris Av	
705	70	39N		GTVLV			5' WEPL - 5' NSPL Well 129	
706	83	39N		SVVLV			Fire Svc - 338' NNC Grand Av - 9' EWPL Alley (Rose & Palmetto Sts)	
707	81	39N		SVVLV			Metered Svc - 217' NNC Grand Av - 8' EWPL Alley (Rose St & Palmelto St)	
801	60	39N		GTVLV			6' SNC Harris Av - On EPL Alley (May & Branch Sts) On WLL 1017 May St	
802	9	39N		GTVLV			10' WEPL alley (Cypress & Branch Sts) - 6' SNC Harris Av - 1' EELL 3933 Harris Av	
803	59	39N		GTVLV			8' SNC Harris Av - 4' WEPL OF ALLEY	
804	8	39N		GTVLV			1' SSC - 3' EWPL OF ALLEY	
805	14	40N		GTVLV			4' WEPL alley - 11' NSC Harris Av	
901	73	40N		GTVLV			6' SNC Harris Av - 9' EWPL alley	
902	112	40N		GTVLV			20' EWC Dry Creek Rd - 9' SNC Harris Av (E)	
903	46	40N		GTVLV			14' WEPL alley - 8' NNC Harris Av	
904	72	40N		GTVLV			8' SNC Harris Av - 3' EWPL alley	
905	16	40N		GTVLV			5' SSC Harris Av - 7' WEPL alley (Clay & Dry Creek)	
906	15	40N		GTVLV			9' EWPL alley - 4' NSC Harris Av	

HYDRANTS

New ID	Old ID	Old Map	Make	Type	Pic Code	Valve Distance	main Distance	Location
201	33	39N	M	WH	M6-5 1/4K	Use GV110 & GV127 map40N	127 map40N	S side O'Donnell Av - 6' WELL 1036
202	45	39N	M	STD	M6-5 1/4K	19' W - 5' N	20' E	E side May St (between North Av & Hwy 80) End of May St.
203	34	39N	M	STD	M6-5 1/4K	Use GV128 map40N	End of main	N side Jean Av - End of Ct.
301	36	40N	M	STD	M2-4 1/4G	13' W	17' E	E side Dry Creek Rd - SLL 4101 Dry Creek Rd
302	41	40N	M	STD	M6-5 1/4H	12'N	5' S	SE Cor O'Donnell Av & Haywood St
303	40	40N	D	STD	D1-4 1/2H	9' N	5' S	S side O'Donnell Av - 120' WWPL Dry Creek Rd
304	35	40N	M	STD	M5-4 1/2H	42'E	8' W	NW Cor Jean Av & Dry Creek Rd
401	42	39N	K	STD	K4-4 1/2H	16' N	17' S	SW Cor North Av & Palmetto St
402	4	39N	K	STD	K4-4 1/2H	15' N	17' S	SW Cor North Av & Cypress St
501	3	39N	PS	STD	PS5-4H	11' N	12' S	S side North Av - SW Cor alley (Branch & May Sts)
502	2	39N	K	STD	K11-5 1/4H	14' N	16' S	SW Cor. Belden & North
601	34	40N	M	STD	M6-5 1/4H	4' N	8' S	SE Cor Jean Av & Haywood St
602	6	40N	PS	STD	PS5-4H	8' N	11' S	SW Cor North Av & Clay St
603	52	40N	K	STD	K8-4 1/2H	26' N		SE Cor Haywood St & North Av
604	5	40N	MH	STD	MH2-4 1/4H	14' N	15' S	S side North Av - 1240 North Av - 6' EWLL
605	1	40N	PS	STD	PS5-4H	25' E	27' W	W side Dry Creek Rd - 2' NSLL 3921 Dry Creek Rd
701	21	39N	K	STD	K4-4 1/2H	30' S	31' N	NW Cor Harris Av & Cypress St (RO101700)
702	5	39N	W	STD	W1-5 1/4H	2' E - 2' S	5' W	W side Rio Linda Blvd at Well Site #129
703	38	39N	K	PRIV	K4-4 1/2H	1' E	End of main	E side Rose St - 250' S Harris St
801	22	39N	K	STD	K4-4 1/2H	8' S	10' N	NE Cor Harris Av & alley (Branch & May Sts)
802	23	39N	K	STD	K4-4 1/2H	13' S	14' N	NW Cor Harris Av - alley (Belden & Haywood Sts)
901	23	40N	K	STD	K4-4 1/2H	10' S	12' N	NE Cor Harris Av & alley (Clay St & Dry Creek Rd)
902	53	40N	K	STD	K8-4 1/2H	35' N		SW Cor Clay St & Harris Av

WATER MAP 2016
CITY OF SACRAMENTO

R19

INTRANET MAP LINKS
T-MAIN / AGE MAPS
W-PRESSURE MAPS
W-AERIAL MAPS
SWR/DRN MAPS
FIBER MAPS

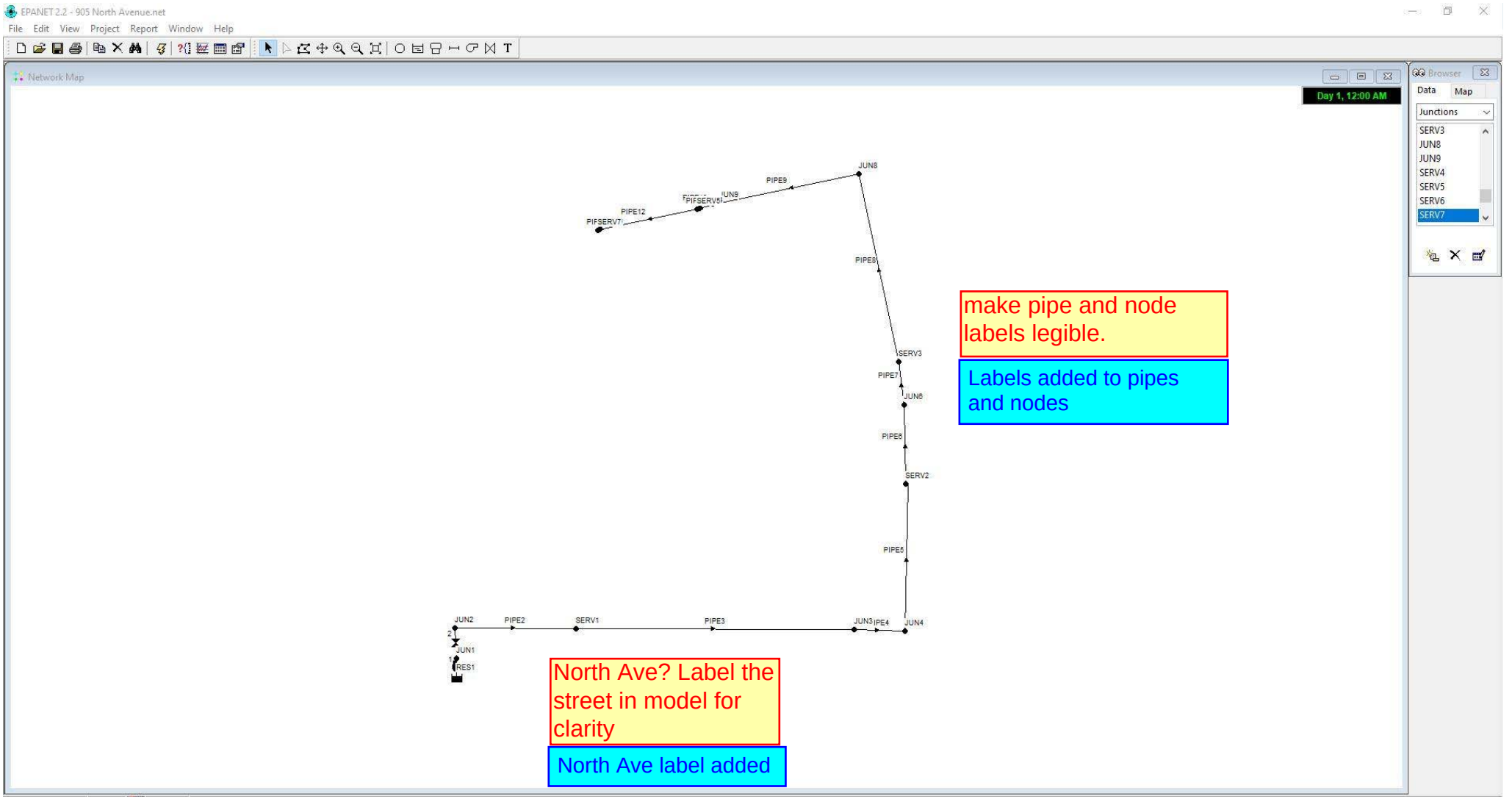
INTERSTATE 80
I-80 NORTH DITCH
I-80 SOUTH DITCH
RIO LINDA BLVD.
MAY ST.
DRY CREEK RD
O'DONNELL AVE.
JEAN AVE.
NORTH AVE.
HARRIS AVE.
ROSE ST.
PALMETTO ST.
CYPRESS ST.
BRANCH ST.
MAY ST.
BELDEN ST.
HAYWOOD ST.
CLAY ST.
DRY CREEK RD.
RIO LINDA BLVD.
SACRAMENTO NORTHERN PARKWAY
NORTH AVENUE SCHOOL PARK
WELL 129
2005-0325

Hydrant Info.

Note: Water mains, hydrants and valve locations are generalized. Material type and diameter may need to be verified on mains installed before 1980's.

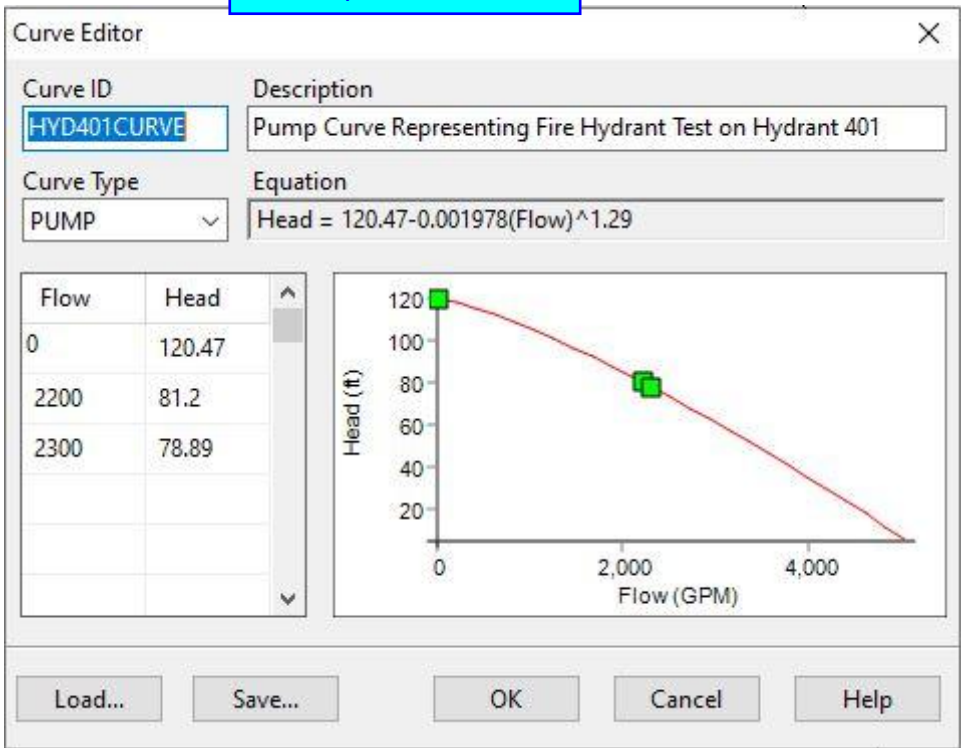
APPENDIX D

WATER CALCULATIONS AND EPANET REPORT


EPANET 2.2 - 905 North Avenue.net
File Edit View Project Report Window Help
Network Map
Day 1, 12:00 AM
Browser
Data
Map
Junctions
SERV3
JUN8
JUN9
SERV4
SERV5
SERV6
SERV7
JUN8
PIPE9
JUN9
PIFSERV5
PIPE12
PIFSERV7
PIPE8
SERV3
PIPE7
JUN6
PIPE6
SERV2
PIPE5
JUN2
PIPE2
SERV1
PIPE3
JUN3
IPE4
JUN4
JUN1
RES1
make pipe and node labels legible.
Labels added to pipes and nodes
North Ave? Label the street in model for clarity
North Ave label added

update curve per latest water supply test.

Curve updated



Network Table - Nodes

Node ID	Demand GPM	Head ft	Pressure psi	Quality
Junc JUN1	0.00	151.78	50.60	0.00
Junc JUN2	0.00	120.33	37.00	0.00
Junc JUN3	0.00	119.96	36.43	0.00
Junc JUN4	0.00	119.73	36.27	0.00
Junc SERV2	50.00	119.21	36.04	0.00
Junc JUN6	0.00	119.01	36.42	0.00
Junc SERV3	50.00	118.89	36.62	0.00
Junc JUN8	0.00	118.58	37.39	0.00
Junc JUN9	0.00	118.34	36.96	0.00
Junc SERV4	50.00	118.29	36.93	0.00
Junc SERV5	50.00	118.28	36.93	0.00
Junc SERV6	50.00	118.24	36.92	0.00
Junc SERV7	50.00	118.23	36.91	0.00
Junc SERV1	50.00	120.19	36.90	0.00
Resvr RES1	-350.00	35.00	0.00	0.00

Network Table - Links

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Friction Factor	Reaction Rate mg/L/d	Quality	Status
Pipe PIPE3	300.00	1.91	1.65	0.019	0.00	0.00	Open
Pipe PIPE4	300.00	3.40	8.54	0.024	0.00	0.00	Open
Pipe PIPE5	300.00	3.40	6.96	0.019	0.00	0.00	Open
Pipe PIPE6	250.00	2.84	4.99	0.020	0.00	0.00	Open
Pipe PIPE7	250.00	2.84	5.50	0.022	0.00	0.00	Open
Pipe PIPE8	200.00	2.27	3.17	0.020	0.00	0.00	Open
Pipe PIPE9	200.00	2.27	3.27	0.020	0.00	0.00	Open
Pipe PIPE10	200.00	2.27	4.34	0.027	0.00	0.00	Open
Pipe PIPE11	150.00	1.70	10.70	0.119	0.00	0.00	Open
Pipe PIPE12	100.00	1.13	0.88	0.022	0.00	0.00	Open
Pipe PIPE2	350.00	2.23	2.26	0.019	0.00	0.00	Open
Pipe PIPE14	50.00	0.57	1.22	0.122	0.00	0.00	Open
Pump 1	350.00	0.00	-116.78	0.000	0.00	0.00	Open
Valve 2	350.00	3.97	31.44	0.000	0.00	0.00	Active

Network Table - Nodes

Node ID	Demand GPM	Head ft	Pressure psi	Quality
Junc JUN1	0.00	143.91	47.19	0.00
Junc JUN2	0.00	120.33	37.00	0.00
Junc JUN3	0.00	118.13	35.64	0.00
Junc JUN4	0.00	116.70	34.96	0.00
Junc SERV2	50.00	113.43	33.53	0.00
Junc JUN6	0.00	111.87	33.33	0.00
Junc SERV3	50.00	110.91	33.16	0.00
Junc JUN8	0.00	107.66	32.66	0.00
Junc JUN9	0.00	105.17	31.25	0.00
Junc SERV4	50.00	104.65	31.02	0.00
Junc SERV5	50.00	104.46	30.94	0.00
Junc SERV6	50.00	103.19	30.39	0.00
Junc SERV7	550.00	103.05	30.33	0.00
Junc SERV1	50.00	119.60	36.64	0.00
Resvr RES1	-850.00	35.00	0.00	0.00

Network Table - Links

Link ID	Flow GPM	Velocity fps	Unit Headloss ft/Kft	Friction Factor	Reaction Rate mg/L/d	Quality	Status
Pipe PIPE3	800.00	5.11	10.26	0.017	0.00	0.00	Open
Pipe PIPE4	800.00	9.08	54.86	0.021	0.00	0.00	Open
Pipe PIPE5	800.00	9.08	43.61	0.017	0.00	0.00	Open
Pipe PIPE6	750.00	8.51	39.02	0.017	0.00	0.00	Open
Pipe PIPE7	750.00	8.51	43.62	0.019	0.00	0.00	Open
Pipe PIPE8	700.00	7.94	32.86	0.017	0.00	0.00	Open
Pipe PIPE9	700.00	7.94	34.09	0.017	0.00	0.00	Open
Pipe PIPE10	700.00	7.94	47.20	0.024	0.00	0.00	Open
Pipe PIPE11	650.00	7.38	194.55	0.115	0.00	0.00	Open
Pipe PIPE12	600.00	6.81	24.92	0.017	0.00	0.00	Open
Pipe PIPE2	850.00	5.43	11.85	0.017	0.00	0.00	Open
Pipe PIPE14	550.00	6.24	139.75	0.116	0.00	0.00	Open
Pump 1	850.00	0.00	-108.91	0.000	0.00	0.00	Open
Valve 2	850.00	9.65	23.58	0.000	0.00	0.00	Active

2260 Douglas Blvd., Suite 160 Roseville, CA 95661
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September 13, 2023

Allen Sigl
CSG Consultants
1303 J St, Suite 270
Sacramento, CA 95814

Re. COM-2307306/CSF 23F-2105 905 North Ave

Dear Allen,

Please find the following civil improvement plans for your review and approval. Below are the response to comments:

1. Provide access turning radii to be 35 feet inside and 55 feet outside
Response: Fire turning radii shown on sheet C5.

2. Provide KNOX for vehicle access gates.
Response: There are no vehicle access gates proposed for this project.

3. Provide civil stamps on plans to be signed.
Response: Civil improvement plans are stamped and signed.

4. Provide all existing and new fire hydrants on civil water plan
Response: Existing fire hydrants annotated on sheet C7. City of Sacramento DOU stated that no onsite fire hydrants will be needed.

5. Provide and show any water line for fire sprinkler systems.
Response: There are fire sprinkler systems for the residential units. Water from the domestic water service will be used for the individual units.

Please review these plans and advise of your approval. If you should have any questions or need further clarification on the plans, please don't hesitate to call this office.

Sincerely,

CWE

Aaron Bernatchy

Aaron Bernatchy, E.I.T.
Engineer I