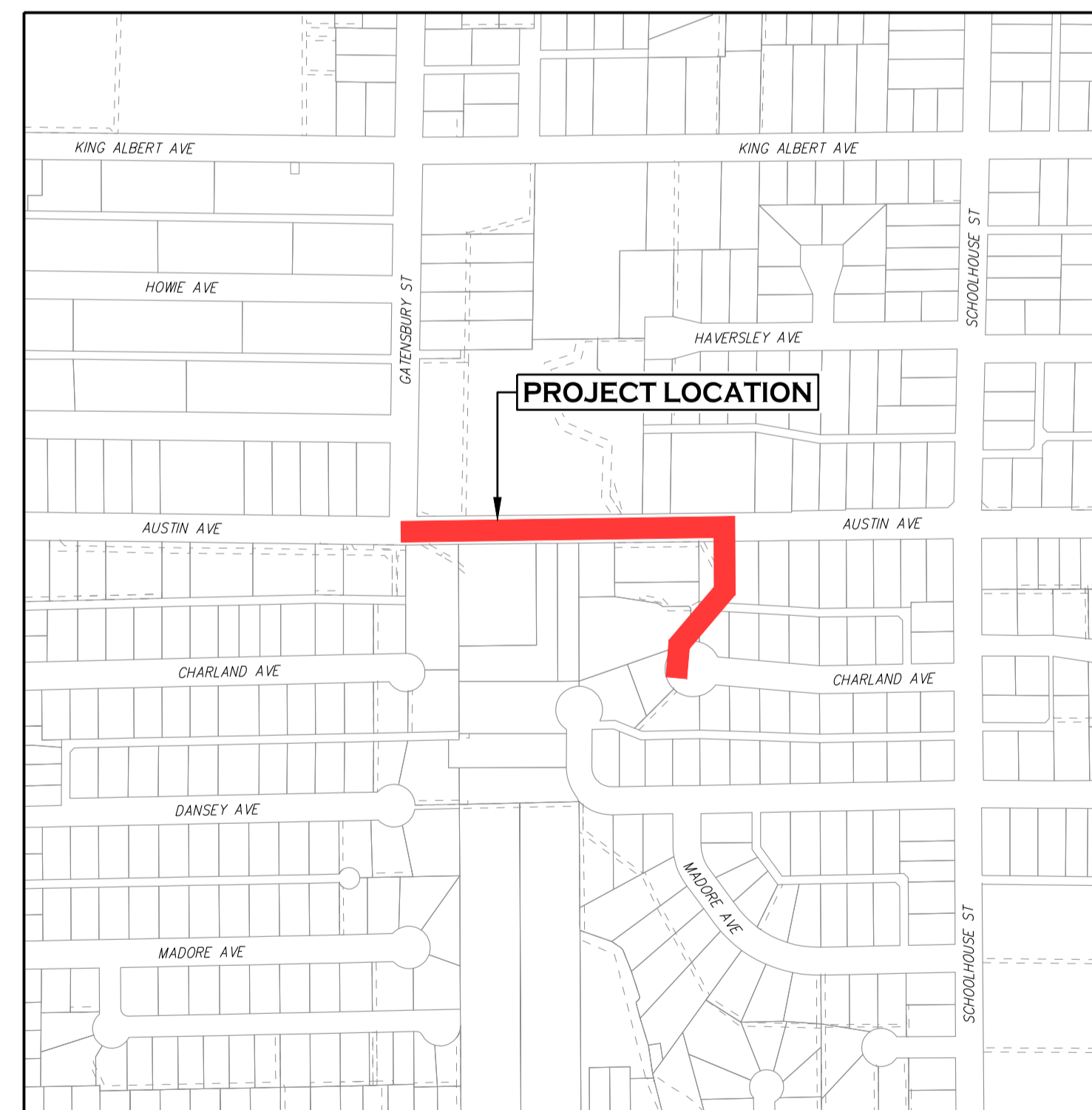


**CITY OF COQUITLAM**  
**3000 GUILDFORD WAY, COQUITLAM, BC V3B 7N2**

# AUSTIN HEIGHTS SEWER UPGRADE PHASE 3 CONTRACT 84495 - 3

**ISSUED FOR TENDER**

LEGEND		
EXISTING	PROPOSED	DESCRIPTION
		IRON PROPERTY PIN
		BUILDING
		EDGE OF PAVEMENT
		CURB & GUTTER
		TRUCK ROUTE
		SANITARY SEWER
		SANITARY CONNECTION & INSPECTION CHAMBER
		STORM SEWER
		STORM CONNECTION & INSPECTION CHAMBER
		STORM SEWER SERVICE
		FRENCH DRAIN
		STORM SEWER & CLEANOUT
		CATCH BASIN - TOP INLET & SIDE INLET
		LAWN DRAIN
		CATCH BASIN MANHOLE
		SWALE
		DITCH
		SIDEWALK (ASPHALT)
		SIDEWALK (CONCRETE)
		RETAINING WALL
		WATERMAIN
		WATER SERVICE CONNECTION
		WATER VALVE
		AIR VALVE
		HYDRANT & VALVE ASSEMBLY
		YARD HYDRANT
		CAPPED END
		WATER METER
		BLOW-OFF
		UNDERGROUND TELEPHONE & MANHOLE
		UNDERGROUND ELECTRICAL & MANHOLE
		GASMAIN
		TRAFFIC SIGNAL & STREET LIGHT U/G DUCTS
		ORNAMENTAL STREET LIGHT - DAVIT
		ORNAMENTAL STREET LIGHT - POST TOP
		UTILITY POLE
		UTILITY POLE W/ LIGHT
		JUNCTION BOX
		GROUND ELEVATION
		DIRECTION OF OVERLAND FLOW



**SITE MAP**  
SCALE 1:10000

DRAWING INDEX				
SHEET #	DWG. TITLE	STREET NAME	LOCATION	RFB DWG. #
	COVER SHEET			
01	SANITARY SEWER	DRAWING INDEX PLAN & NOTES		21-0989-S-KP3
02	SANITARY SEWER	TYPICAL SECTIONS & DETAILS		21-0989-S-TS3
03	SANITARY SEWER - PLAN AND PROFILE	AUSTIN AVE	GATENSBUARY ST TO #1390 AUSTIN AVE	21-0989-1-S1
04	SANITARY SEWER - DETAILS - PILE	AUSTIN AVE	GATENSBUARY ST TO #1390 AUSTIN AVE	21-0989-1-S2
05	SANITARY SEWER - PLAN AND PROFILE	AUSTIN AVE	GATENSBUARY ST AND #1387 AUSTIN AVE	21-0989-1-S3
06	SANITARY SEWER - PLAN AND PROFILE	ROW - PLAN 28130, PLAN 37940, PLAN 37983, & SRWEP 38165	AUSTIN AVE TO KARP CRT	21-0989-4-S4
07	SANITARY PIPE UPGRADE PILES	PLAN VIEW, SECTIONS, AND GENERAL NOTES	GATENSBUARY ST TO #1390 AUSTIN AVE	S01

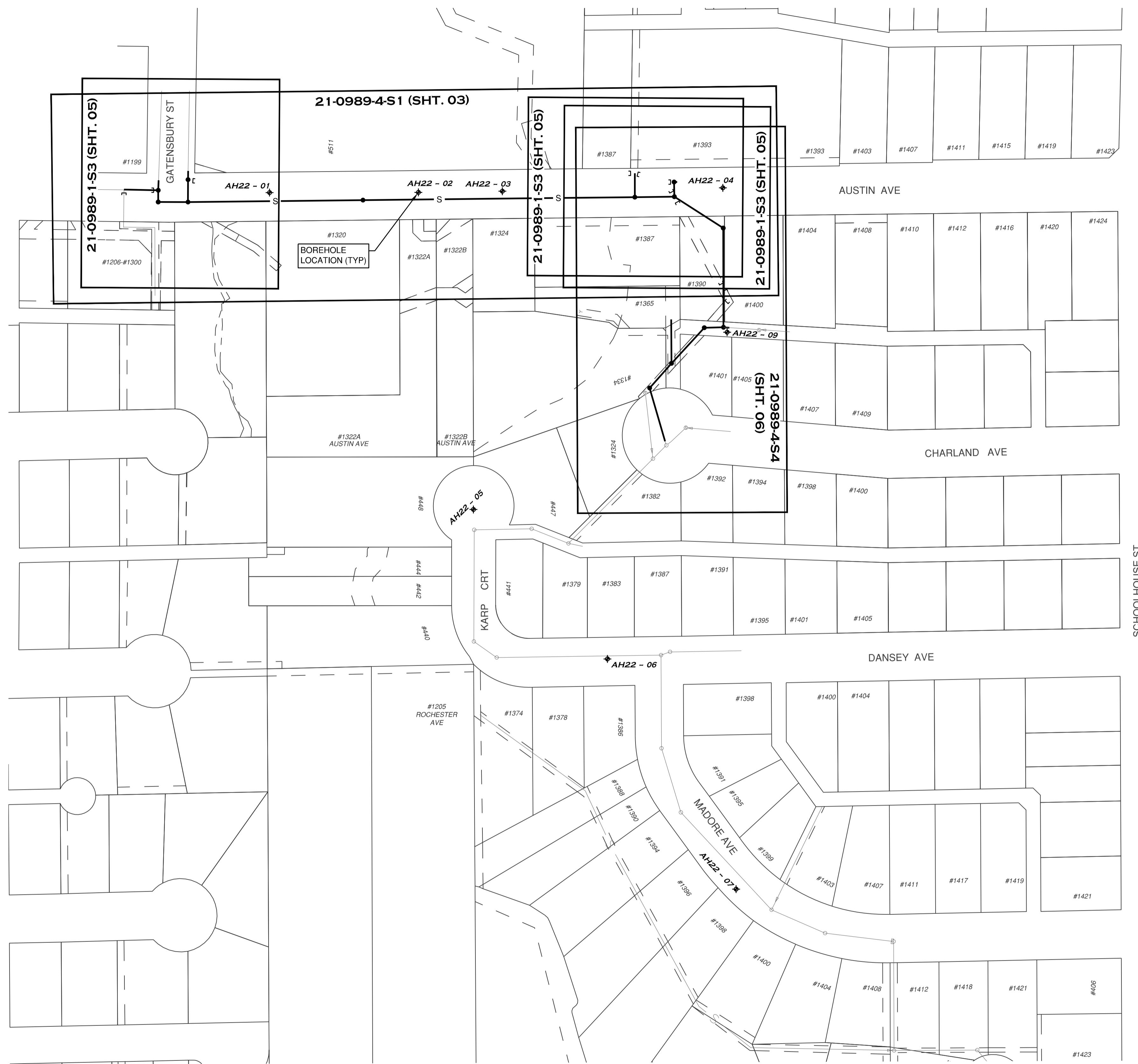


**R.F. BINNIE & ASSOCIATES LTD.**  
 300 - 4940 Canada Way,  
 Burnaby, BC V5G 4K6  
 TEL 604 420 1721  
**BINNIE.com**

**BENCHMARK:**  
 SURVEY CONTROL MONUMENT 77H5621 LOCATED AT SOUTH INTERSECTION OF GATENSBUURY ST & AUSTIN AVE ELEVATION=113.411m [CGVD28 (GVRD 2018)]  
 GPS OBSERVATION AT TAG6906 LOCATED AT SOUTHWEST INTERSECTION OF MADORE AVE AND SCHOOLHOUSE ST ELEVATION=95.006M [CGVD28 (GVRD 2018)]

**GENERAL NOTES:**

- ALL MATERIALS SUPPLIED AND CONSTRUCTION PERFORMED SHALL BE IN ACCORDANCE WITH THE CITY OF COQUITLAM DESIGN CRITERIA, THE LATEST EDITION OF WORKSAFE BC, THE LATEST EDITION OF THE MASTER MUNICIPAL CONTRACT DOCUMENTS (MMCD), AND ANY OTHER APPLICABLE DESIGN CRITERIA, SPECIFICATIONS, STANDARD DRAWINGS, AND CONSTRUCTION SPECIFICATIONS.
- PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL CONFIRM THE LOCATION AND ELEVATION OF ALL EXISTING UNDERGROUND UTILITIES BY HYDRO EXCAVATION AND/OR SURVEYING AT ALL TIE-IN AND CROSSING POINTS. NOTIFY THE CONTRACT ADMINISTRATOR OF ANY DISCREPANCIES OR CONFLICTS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- ALL EXCAVATION WITHIN EXISTING TREE DRIPLINES TO BE BY HAND OR HYDRO-VAC. CONTACT THE CITY ARBORIST PRIOR TO REMOVING TREE ROOTS IN CONFLICT WITH THE PROPOSED UNDERGROUND WORKS.
- THE CONTRACTOR SHALL RECORD COMPLETE AND ACCURATE AS-BUILT INFORMATION ON A SET OF CURRENT CONSTRUCTION DRAWINGS DURING CONSTRUCTION AND SUBMIT THE INFORMATION TO THE CONTRACT ADMINISTRATOR. AS-BUILT INFORMATION SHALL INCLUDE:
  - PIPE INVERTS
  - PIPE GRADES, PIPE SIZE, PIPE MATERIAL AND PIPE CLASS
  - SERVICE WYE LOCATIONS
  - CONNECTIONS
  - BENDS
  - MANHOLES
  - SERVICE ELEVATIONS @ IC'S
  - PROPERTY LINE OFFSETS LOCATION AND INVERT ELEVATIONS OF CASING PIPE END
  - HELICAL PILE LOCATIONS INCLUDING THE TOP ELEVATION OF THE PILES
- ALL SURVEY MONUMENTS, BENCHMARKS, AND LEGAL PINS MUST BE PROTECTED AND ANY DAMAGE CAUSED BY THE NEGLIGENCE OF THE CONTRACTOR SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- ALL EXISTING IMPROVEMENTS INCLUDING EXISTING LANDSCAPING, FENCES, SIDEWALKS, RETAINING WALLS, ETC. SHALL BE RESTORED TO THE SATISFACTION OF THE CITY OF COQUITLAM. IN SPECIAL CASES, THE CITY OF COQUITLAM MAY REQUIRE WRITTEN ACCEPTANCE BY THE AFFECTED PROPERTY OWNERS FOR RESTORATION WORKS PERFORMED BY THE CONTRACTOR.
- PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM ADJACENT PROPERTY OWNERS FOR A TEMPORARY ENCROACHMENT ON PRIVATE PROPERTY.
- CONTRACTOR TO REINSTATE ALL EXISTING PAVEMENT MARKINGS IMPACTED BY CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE TO PERFORM PRE AND POST CONSTRUCTION SURVEY WORK FOR THE REINSTATEMENT OF PAVEMENT MARKINGS.
- REMOVE AND DISPOSE OF EX AC PIPE IN ACCORDANCE WITH WORKSAFE BC AND OTHER PERTINENT REGULATIONS.
- WHERE THERE IS NO CONFLICT WITH PROPOSED MAIN & MANHOLE, MANHOLES NOTED AS TO BE ABANDONED ON THE EXISTING SEWER SYSTEM SHALL BE SEALED AND FILLED AS PER THE FOLLOWING SPECIFICATIONS:
  - PIPES SHALL BE PLUGGED IN THE MANHOLE WITH CONCRETE FILLED SAND BAGS. PRIOR TO BURYING, FIELD INSPECTOR TO WITNESS THAT PIPES HAVE BEEN PLUGGED.
  - CAST IRON FRAMES AND COVERS, BRICKS AND/OR PRE-CAST CONCRETE RINGS, AND THE TOP OF THE MANHOLE STRUCTURE SHALL BE REMOVED AND DISPOSED OFFSITE. THE MANHOLE CASTINGS SHALL BE RETURNED TO THE CITY.
  - MANHOLE SECTIONS SHALL BE REMOVED TO MIN 1.2M BELOW GRADE.
  - MANHOLES SHALL BE FILLED WITH 19MM MINUS AND COMPACTED IN 0.3M LIFTS TO 95% MODIFIED PROCTOR DENSITY.
- EXISTING SEWERS AND MANHOLES TO BE REMOVED AS PART OF THE TRENCH EXCAVATION FOR NEW MAINS OR ABANDONED IN PLACE (CONCRETE PLUG ENDS) OR AS NOTED ON THE DRAWINGS.
- CONTRACTOR TO PROVIDE ALL REQUIRED BYPASS PUMPING AND/OR FLOW DIVERSION DURING PIPE INSTALLATION AND TIE-IN CONSTRUCTION.
- SANITARY SEWER SHALL BE POLYVINYLCHLORIDE (PVC) PIPES WITH A MINIMUM SDR 35 SPECIFICATION, UNLESS SPECIFIED OTHERWISE ON THE DESIGN DRAWINGS. TYPICAL TRENCH SECTION SHALL BE INSTALLED AS PER THE CITY OF COQUITLAM STANDARD DRAWING NO. COQ-G4
- SANITARY SERVICE CONNECTIONS SHALL BE 150MM DIAMETER PVC PIPE WITH A MINIMUM SDR 28 SPECIFICATION UNLESS NOTED OTHERWISE. SANITARY SERVICE CONNECTIONS SHALL BE INSTALLED AS PER THE MMCD STANDARD DRAWING NO. S7. 150MM DIAMETER SANITARY SERVICE CONNECTION SHALL BE INSTALLED FROM THE MAIN TO THE PROPERTY LINE AT A MINIMUM GRADE OF 2.0% UNLESS NOTED OTHERWISE. ALL SERVICES SHALL ENTER THE MAIN AT A POINT JUST ABOVE THE SPRINGLINE. CONNECTIONS TO NEW MAINS SHALL BE MADE USING WYE FITTINGS.
- INSPECTION CHAMBERS SHALL BE PROVIDED ON EACH SERVICE CONNECTION WITH THE INLET SIDE EITHER CONNECTED TO AN EXISTING SERVICE OR CAPPED. INSPECTION CHAMBERS MUST BE CENTERED AT A 300mm OFFSET FROM THE PROPERTY LINE.
- SANITARY SERVICE INSPECTION CHAMBERS FOR 100MM TO 200MM SANITARY SERVICE SHALL BE INSTALLED AS PER THE MMCD STANDARD DRAWING NO. S9.
- ALL TERMINAL CLEANOUTS TO HAVE CONCRETE LID & FRAME, METAL LID AND METAL FRAME. RE-USE METAL LID AND METAL FRAME FROM ABANDONED MANHOLES.
- GEODETIC ELEVATIONS ARE DERIVED FROM TIES TO INTEGRATED SURVEY CONTROL MONUMENT 77H5621. LOCATED AT SOUTH INTERSECTION OF GATENSBUURY ST & AUSTIN AVE, PUBLISHED ELEVATION=113.411m, DATUM IS [CGVD28(MVRD 2018)]
- THIS PLAN SHOWS HORIZONTAL GROUND LEVEL MEASURED DISTANCES. PRIOR TO COMPUTATION OF NAD83 U.T.M. COORDINATES MULTIPLY BY THE COMBINED FACTOR 0.9995887. DATE OF SURVEY COMPLETION IS AUGUST 11, 2021.
- GEODETIC ELEVATIONS ARE DERIVED FROM SURVEY CONTROL MONUMENT 77H5621 LOCATED AT SOUTH INTERSECTION OF GATENSBUURY ST & AUSTIN AVE, ELEVATION=113.411m [CGVD28 (GVRD 2018)]. G.P.S. OBSERVATION AT TAG6906 LOCATED AT SOUTHWEST INTERSECTION OF MADORE AVENUE AND SCHOOLHOUSE STREET, ELEVATION=95.006m, DATUM IS [CGVD28 (GVRD 2018)].
- THESE PLANS SHOW HORIZONTAL GROUND LEVEL MEASURED DISTANCES. PRIOR TO COMPUTATION OF NAD83 U.T.M. COORDINATES MULTIPLY BY THE COMBINED FACTOR 0.9995887. DATE OF SURVEY COMPLETION IS MAR 03, 2022.
- THE LOCATION OF EXISTING UNDERGROUND UTILITIES ARE INDICATED IN THE PUBLIC ROAD ALLOWANCE ONLY AND ARE SHOWN APPROXIMATE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. BC ONE-CALL PROVIDES UNDERGROUND UTILITY LOCATIONS (1-800-474-6886).
- LEGAL BOUNDARIES WERE CALCULATED BASED ON LEGAL EVIDENCES AND ALSO IMPORTED FROM CITY OF COQUITLAM G.I.S. COORDINATE GEOMETRY. ACCURACY IS ESTIMATED AT ±0.15m.
- THE CONTRACTOR SHALL PROVIDE TEMPORARY UTILITY POLE SUPPORTS NECESSARY TO COMPLETE THE WORKS AS AN INCIDENTAL ITEM TO THE GENERAL CONTRACT REQUIREMENTS WHERE AND AS REQUIRED.
- RESIDENTS DIRECTLY AFFECTED BY THE CONSTRUCTION OF THESE WORKS SHALL BE GIVEN 5 DAYS WRITTEN NOTICE OF THE PROPOSED START OF CONSTRUCTION. THE CITY IS TO DISTRIBUTE A NOTICE OF CONSTRUCTION LETTER TO ALL AFFECTED RESIDENTS AND BUSINESSES. LETTER TO DIRECT INQUIRIES TO CONTRACT ADMINISTRATOR. FOLLOWING CONSTRUCTION ACTIVITY ON ANY PRIVATE PROPERTY A WRITTEN RELEASE MAY BE REQUIRED FROM THE PROPERTY OWNER AT THE DISCRETION OF THE CITY.



**DRAWING INDEX PLAN**

SCALE - 1:1000

0 1:1000 40m

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Edge of pavement	Hydrant	Sanitary service	Hydro Guy Wire
Watermain and valve	Water air valve	Sanitary cleanout	Hydro Kiosk
Drainage ditch	Water blowoff	Utility pole (joint pole)	Vegetation Conifer
Sanitary sewer, MH	Catch basin, top inlet	Utility pole with light	Vegetation Deciduous
Sanitary forcemain	Catch basin, side inlet	Streetlight, down	Vegetation Shrub
Gasmain and valve	Catch basin, round	Streetlight, post top	Survey Traverse Hub
Hydro duct, MH	Comb signal pole	Traffic signal pole	Survey Iron Pin
Telephone duct, MH	Drainage service	Junction box	Survey Lead Plug
	Drainage cleanout		Survey Monument

No.	Date	By	Revisions
2	2024-12-17	SL	ISSUED FOR TENDER
1	2024-05-03	JD	ISSUED FOR 100% DESIGN

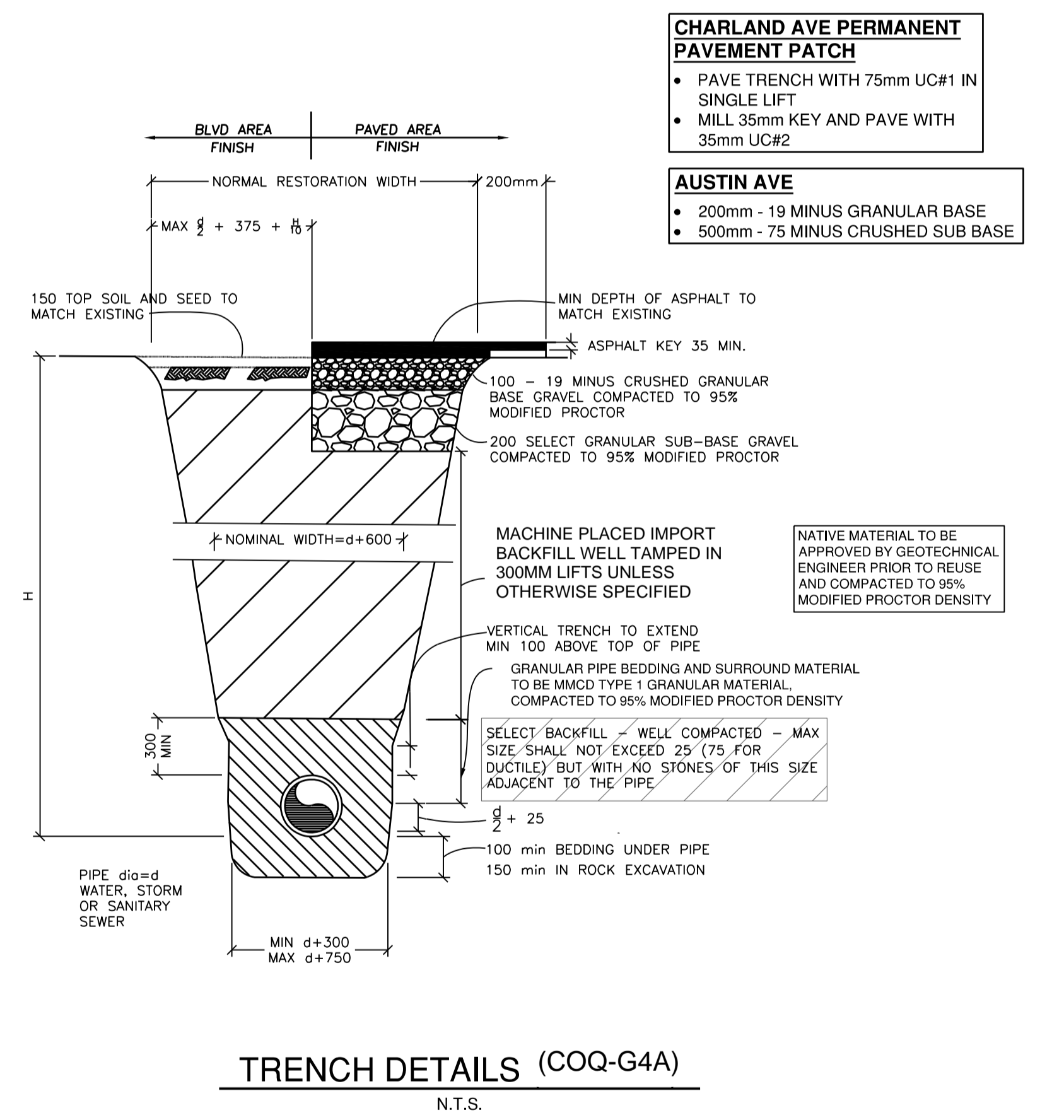
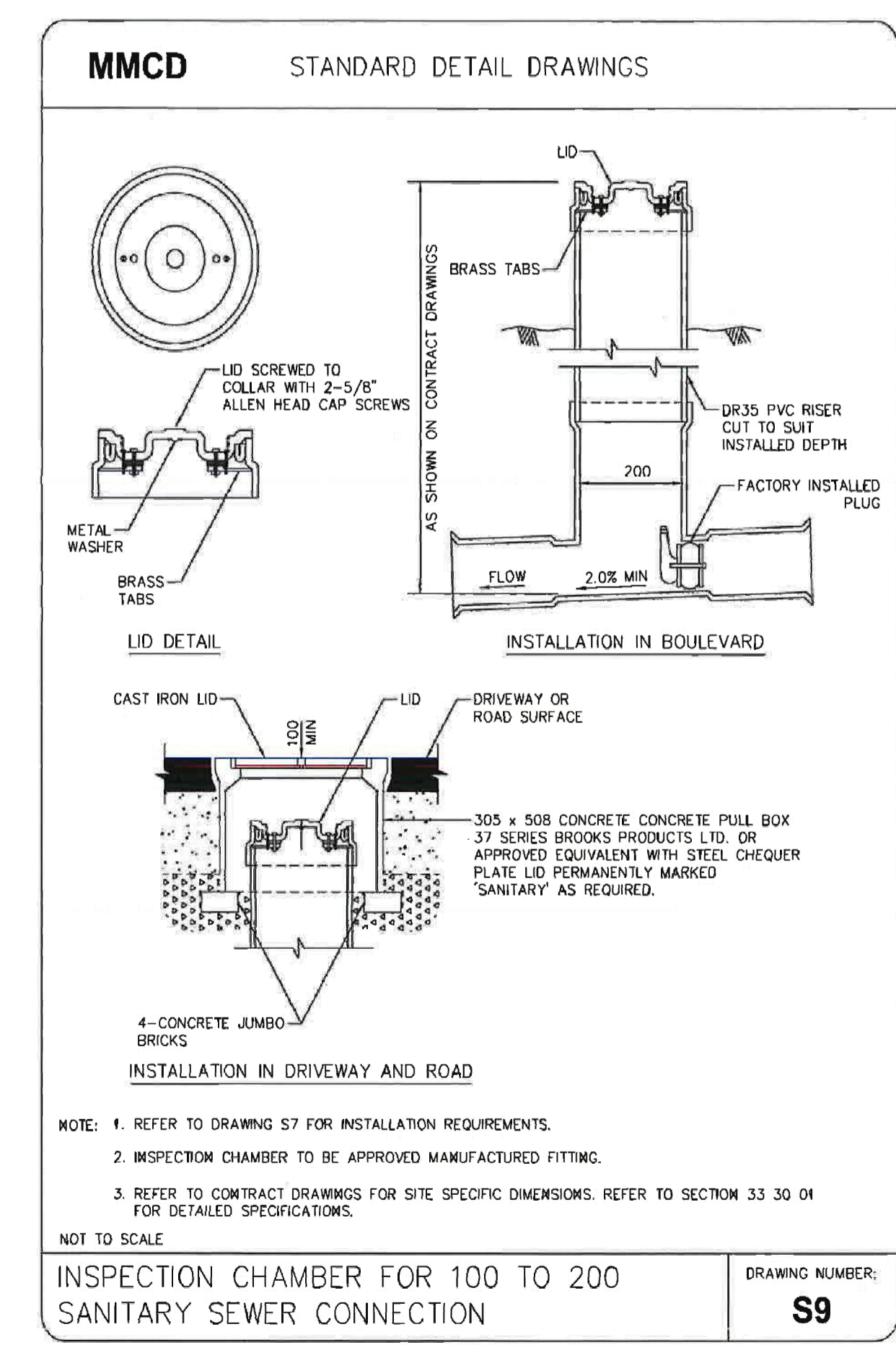
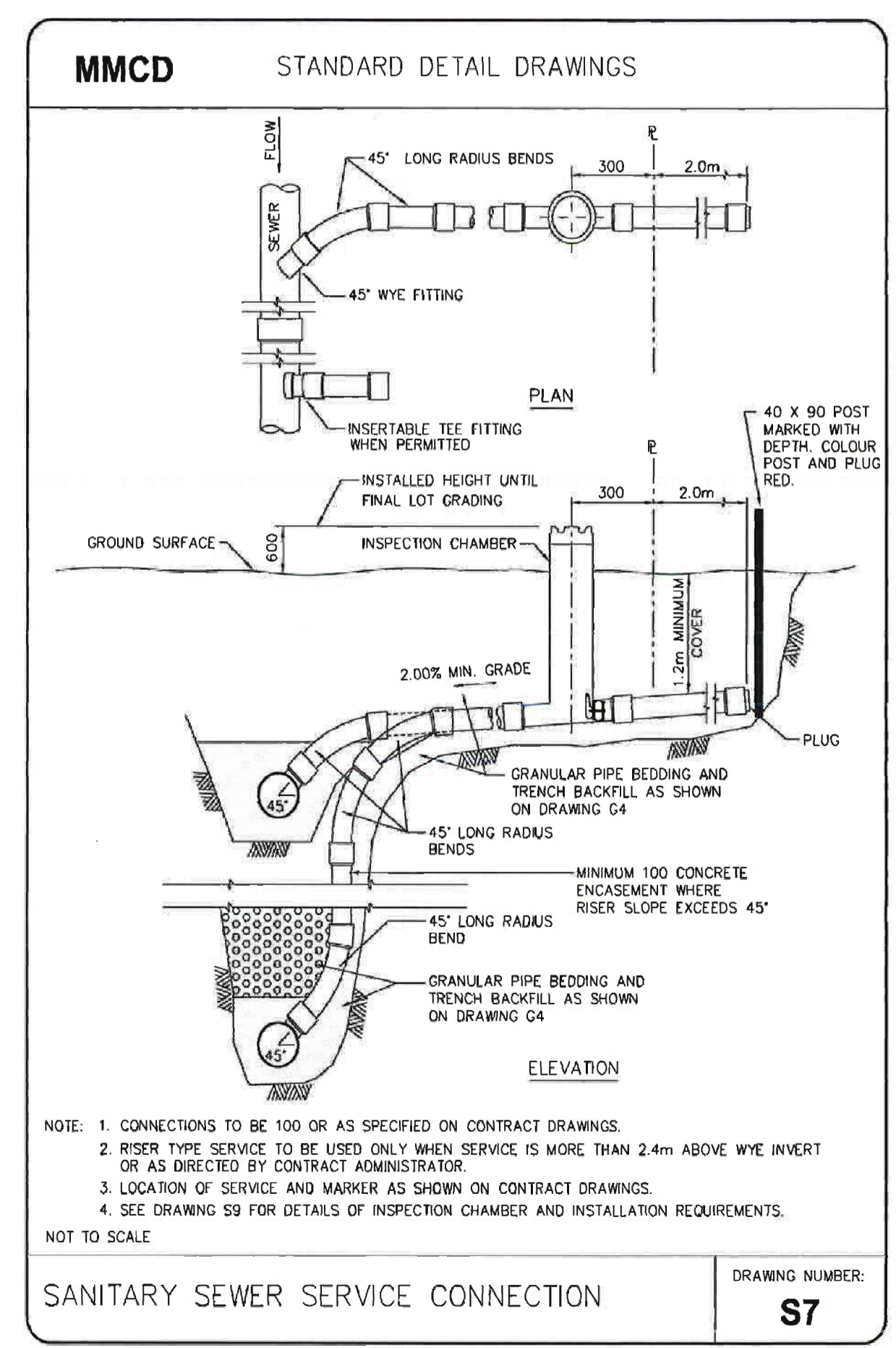
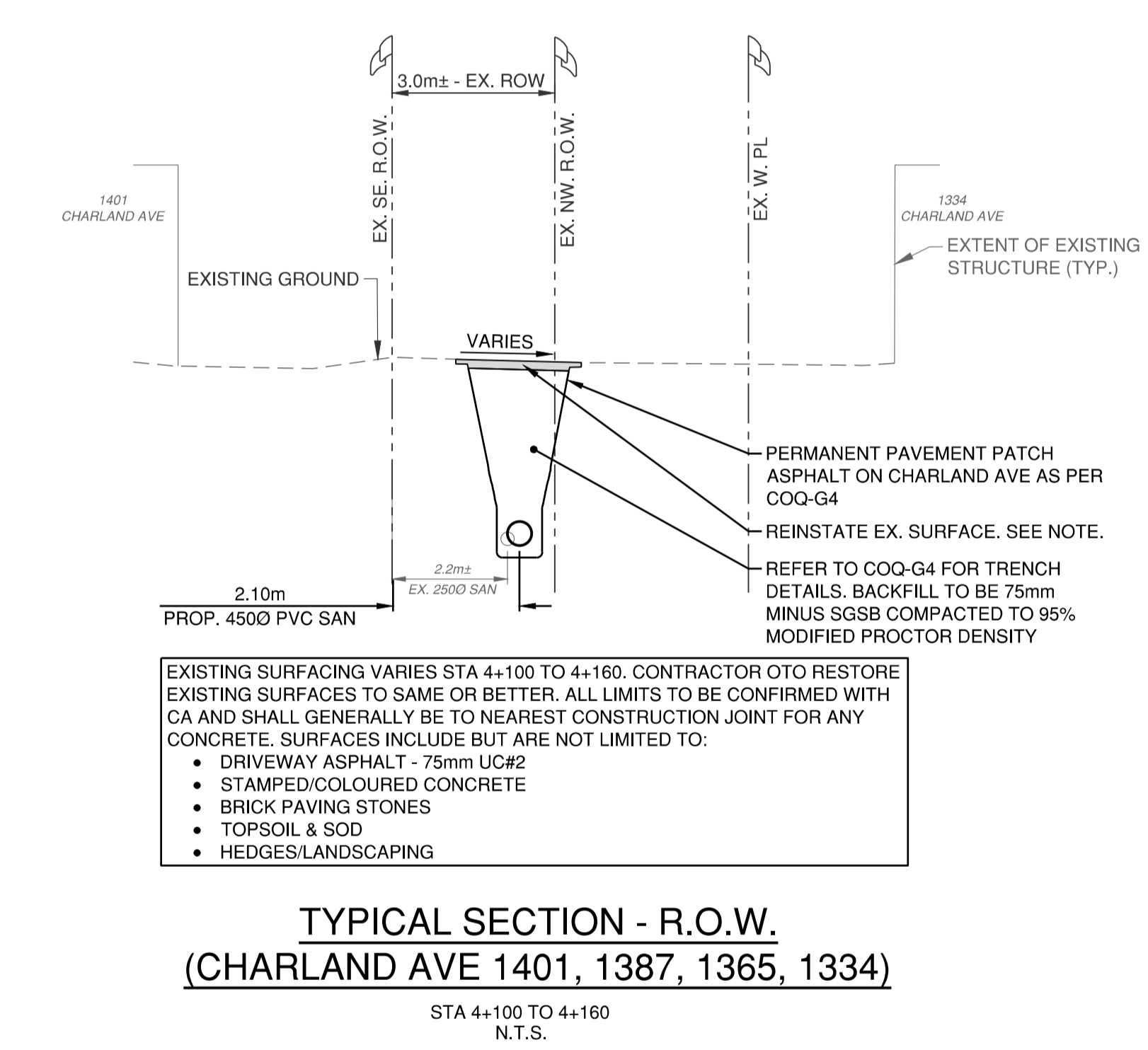
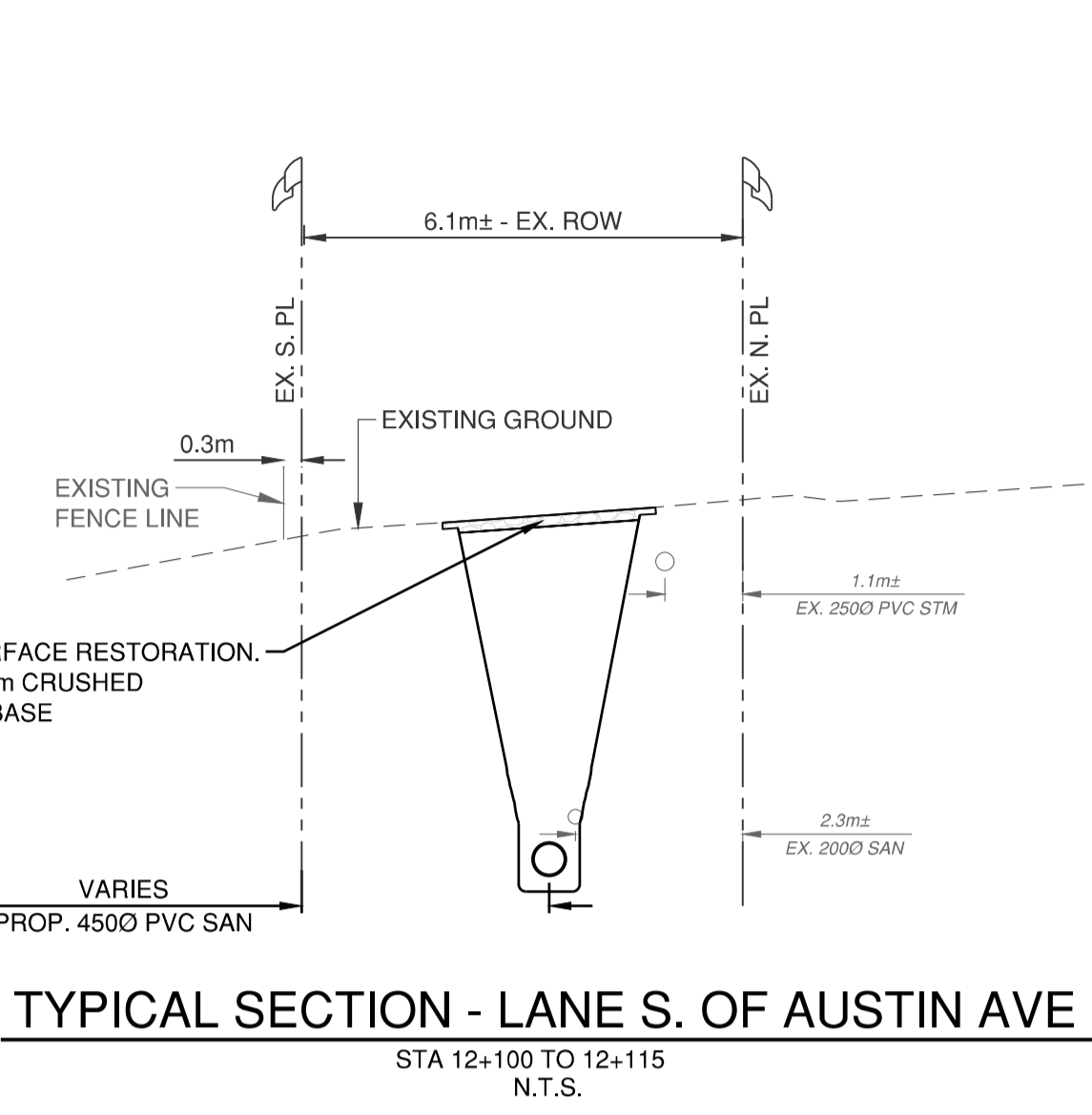
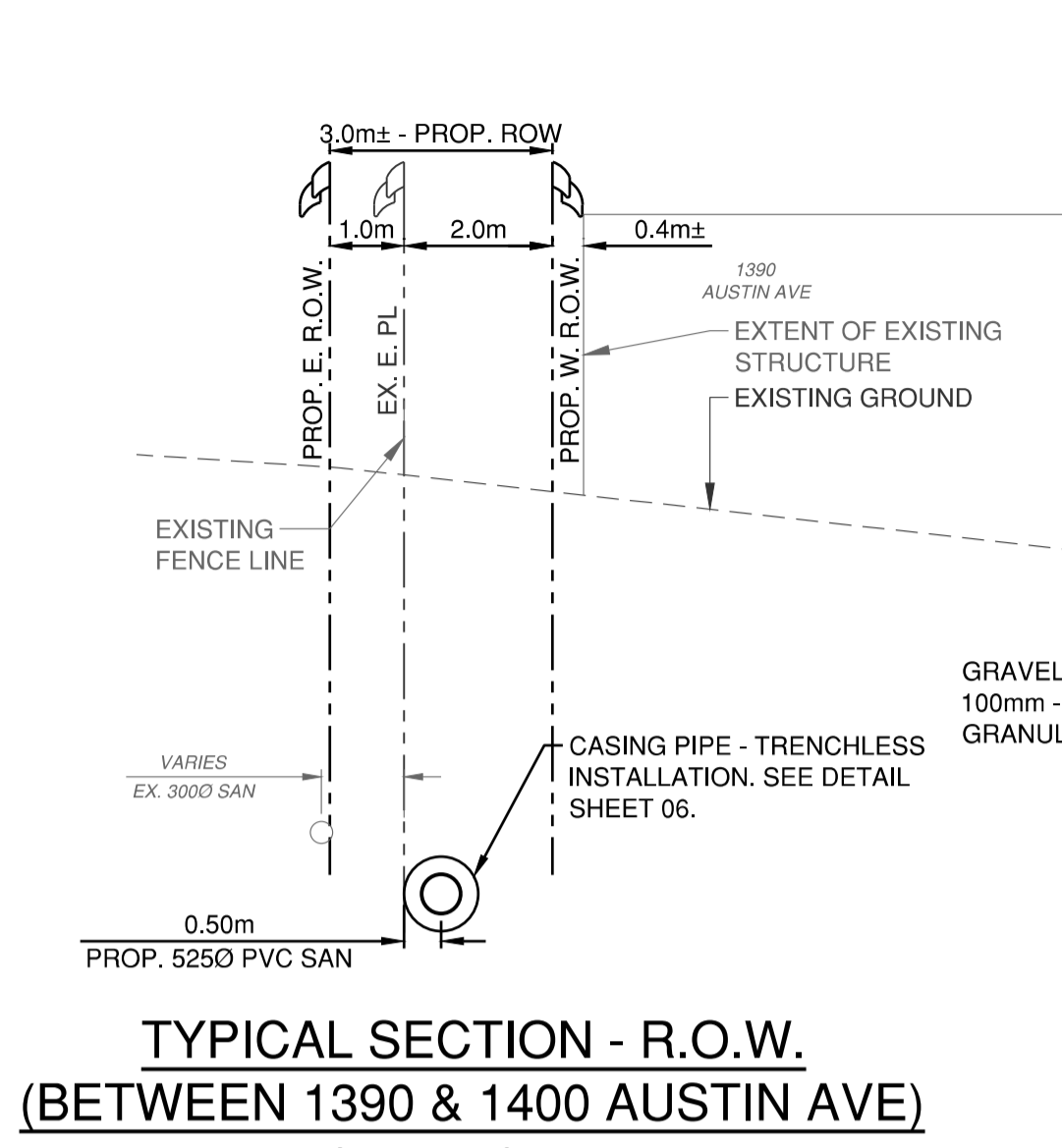
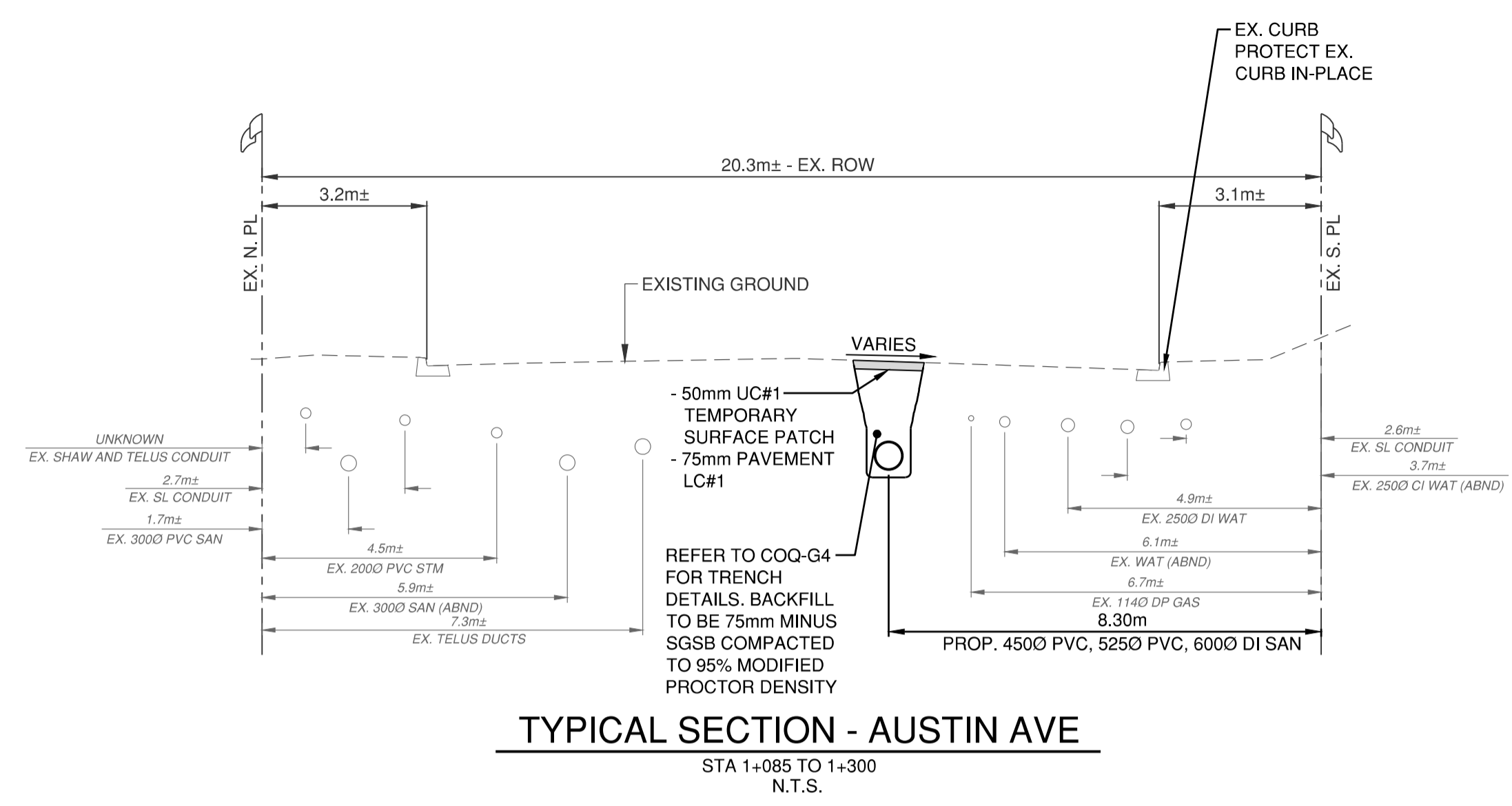
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Drawn by	Date
LY/DK	2024-12-17
Checked by	Date
TDB	2024-12-17
Approved by	Date
TDB	2024-12-17



Scale	1:1000	Scale	1:1000
horiz.	01	vert.	06
Sheet	01	of	06
Eng. Project No.	21-0989		

Project	DRAWING INDEX PLAN & NOTES		
Description	SANITARY SEWER		
File	21-0989-S-KP3		
REV.	1		

PERMIT TO PRACTICE # 1001128  
**NOT FOR CONSTRUCTION**  
**ISSUED FOR TENDER**



- CHARLAND AVE PERMANENT PAVEMENT PATCH**
- PAVE TRENCH WITH 75mm UC#1 IN SINGLE LIFT
  - MILL 35mm KEY AND PAVE WITH 35mm UC#2
- AUSTIN AVE**
- 200mm - 19 MINUS GRANULAR BASE
  - 500mm - 75 MINUS CRUSHED SUB BASE

NOT TO SCALE

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Edge of pavement	Hydrant	Sanitary service	Hydro Guy Wire
Watermain and valve	Water air valve	Sanitary cleanout	Hydro Kiosk
Drainage sewer, MH	Water blowoff	Utility pole (joint pole)	Vegetation Canister
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Sanitary sewer, MH	Catch basin, top inlet	Streetlight, down	Vegetation Shrub
Sanitary forcemain	Catch basin, side inlet	Streetlight, post top	Survey Traverse Hub
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Telephone duct, MH	Drainage cleanout	Junction box	Survey Monument

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1	2024-05-03	JD	ISSUED FOR 100% DESIGN

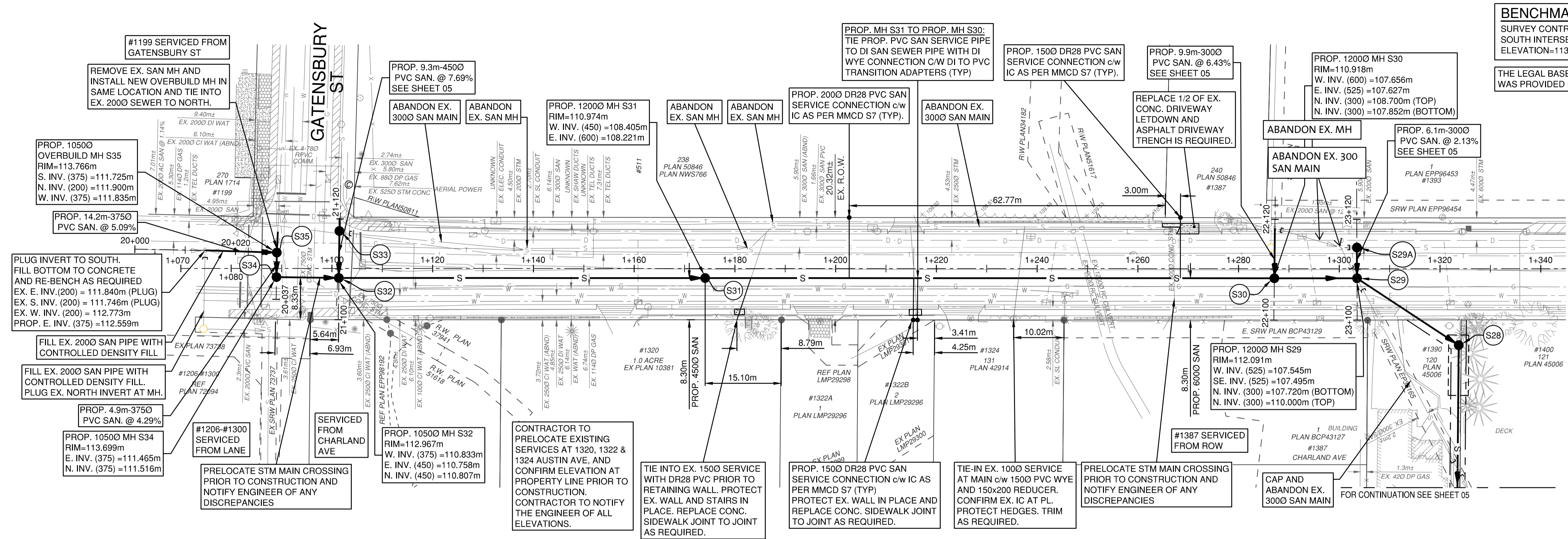
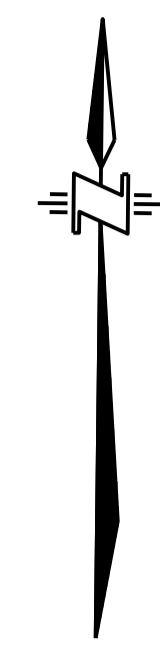
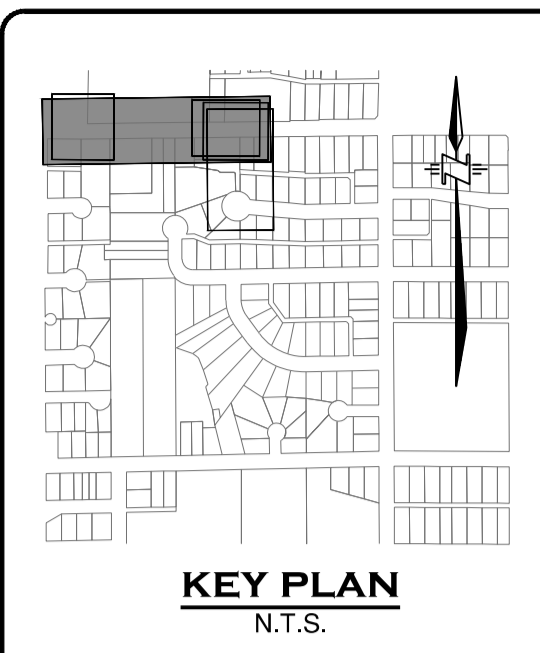
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Drawn by	Date
LY/DK	2024-12-17
Checked by	Date
TDB	2024-12-17
Approved by	Date
TDB	2024-12-17



Scale horiz.	N.T.S.	Scale vert.	N.T.S.
Sheet	02	of	06
Eng. Project No.	21-0989		

Project	TYPICAL SECTIONS & DETAILS
Description	SANITARY SEWER
File	21-0989-S-TS3

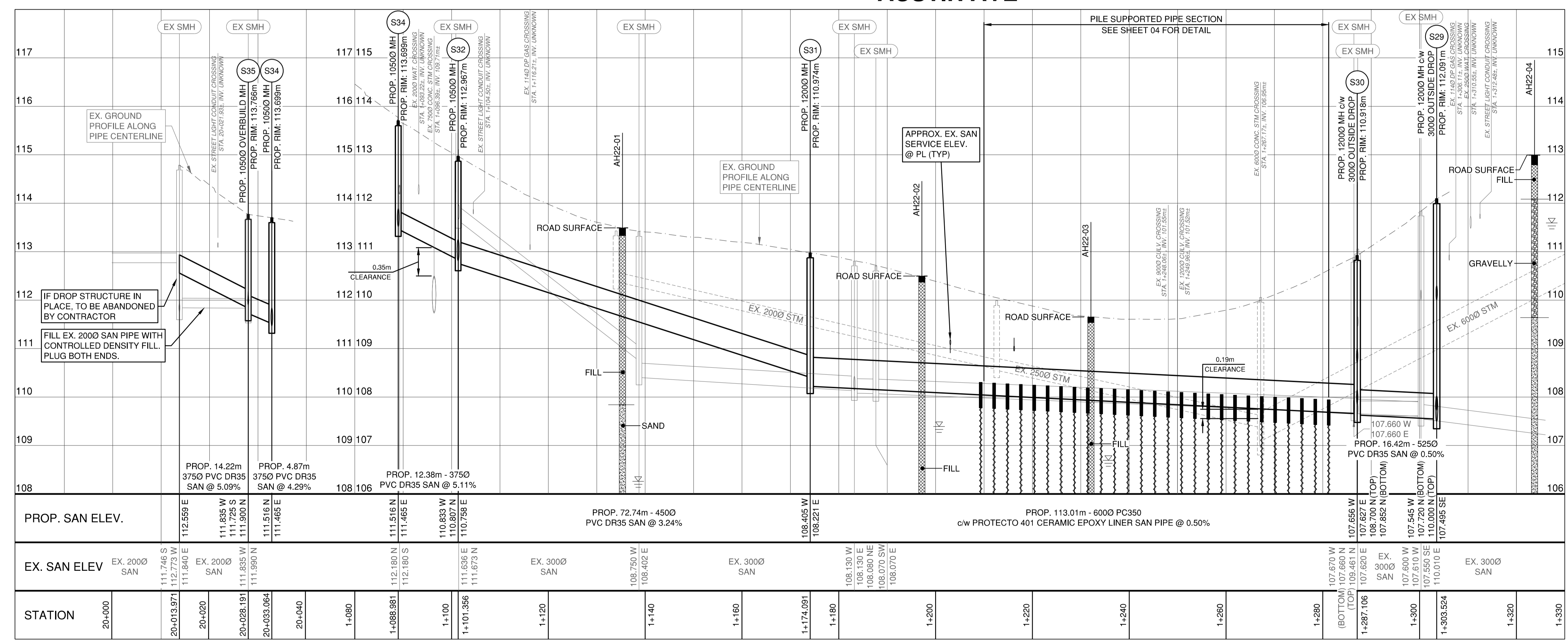
PERMIT TO PRACTICE # 1001128  
**NOT FOR CONSTRUCTION**  
**ISSUED FOR TENDER**



**BENCHMARK:**  
 SURVEY CONTROL MONUMENT 77H5621 LOCATED AT SOUTH INTERSECTION OF GATENSURBY ST & AUSTIN AVE ELEVATION=113.411M (CGVD28 (GVRD 2018))

THE LEGAL BASE USED TO PREPARE THESE DRAWINGS WAS PROVIDED BY CITY OF COQUITLAM.

**AUSTIN AVE**

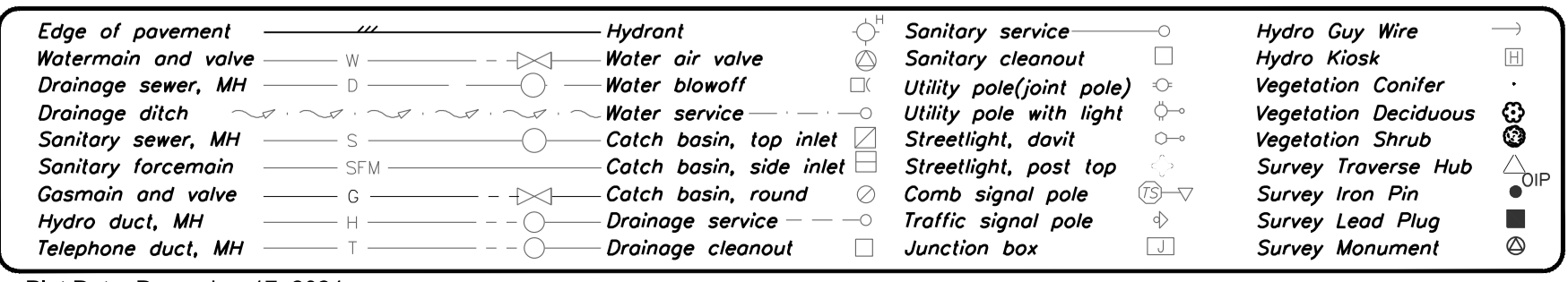


**SANITARY SERVICE MINIMUM DEPTH REQUIREMENTS:**  
 CONTRACTOR TO CONFIRM ALL SERVICE DEPTHS PRIOR TO CONSTRUCTION AND SUBMIT TO CA FOR REVIEW.

ALL SANITARY SERVICE REPLACEMENTS TO BE MIN 1500 OR LARGER AS NOTED

0 H 1:500 20m  
 0 V 1:50 2m

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No.	Date	By	Revisions
2	2024-12-17	SL	ISSUED FOR TENDER
1	2024-05-03	JD	ISSUED FOR 100% DESIGN

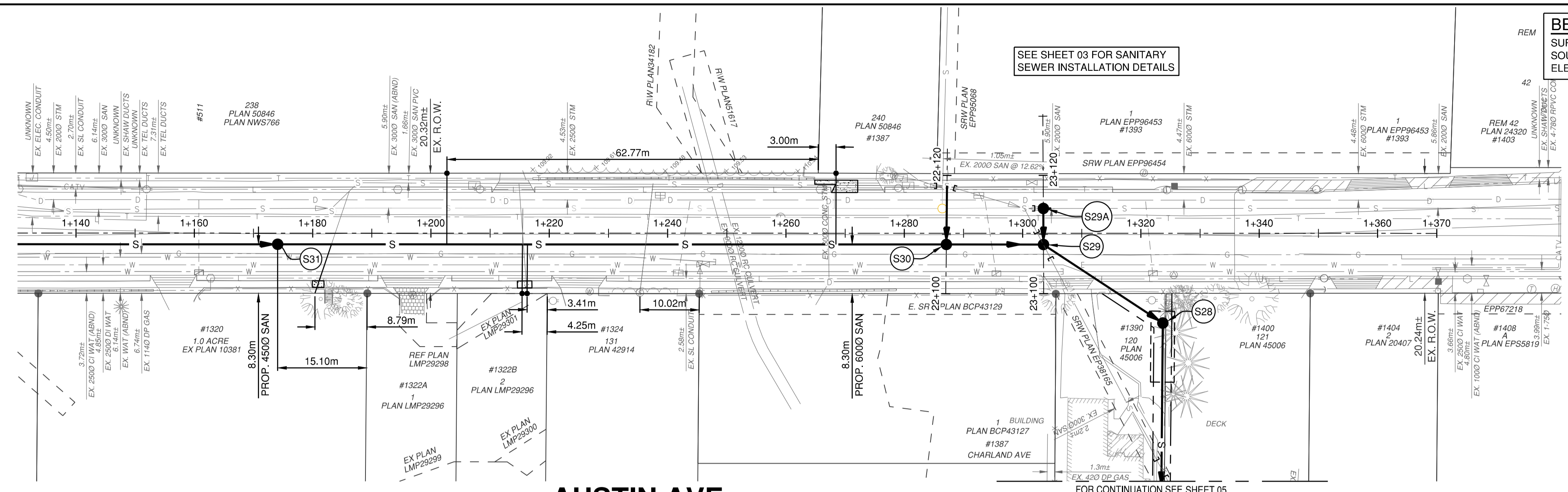
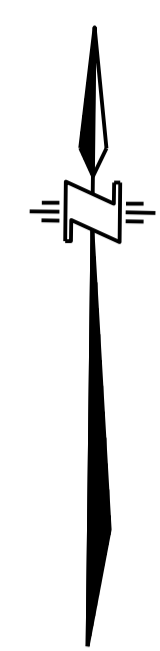
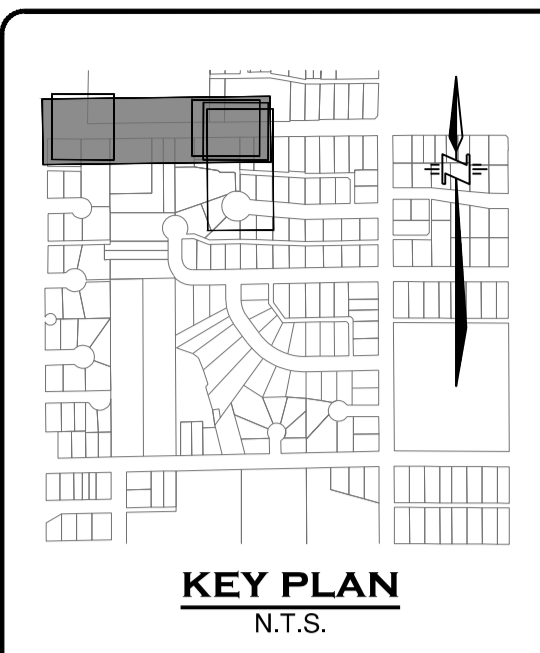
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Drawn by	Date
LY/DK	2024-12-17
Checked by	Date
TDB	2024-12-17
Approved by	Date
TDB	2024-12-17



Scale horiz. 1:500 Scale vert. 1:50  
 Sheet 03 of 06  
 Eng. Project No. 21-0989

Project **AUSTIN AVE**  
**GATENSURBY ST TO #1390 AUSTIN AVE**  
 Description **SANITARY SEWER - PLAN AND PROFILE**  
 File: **21-0989-1-S1**  
 REV. 1

PERMIT TO PRACTICE # 1001128  
**NOT FOR CONSTRUCTION**  
**ISSUED FOR TENDER**



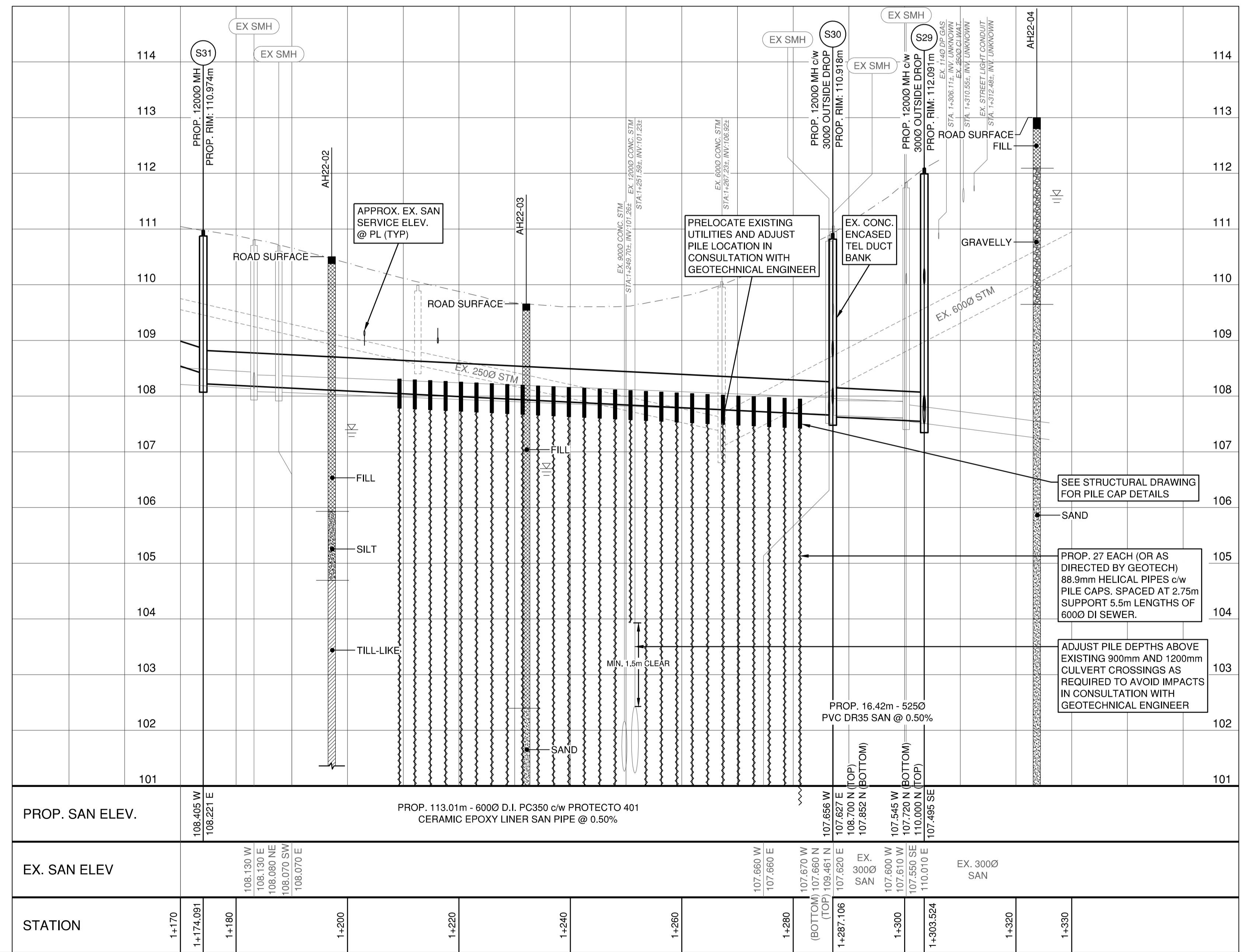
**BENCHMARK:**  
 SURVEY CONTROL MONUMENT 77H5621 LOCATED AT  
 SOUTH INTERSECTION OF GATENSBUARY ST & AUSTIN AVE  
 ELEVATION=113.411M (CGVD28 (GVRD 2018))

**AUSTIN AVE**

**HELICAL PILE AND PILE CAP NOTES**

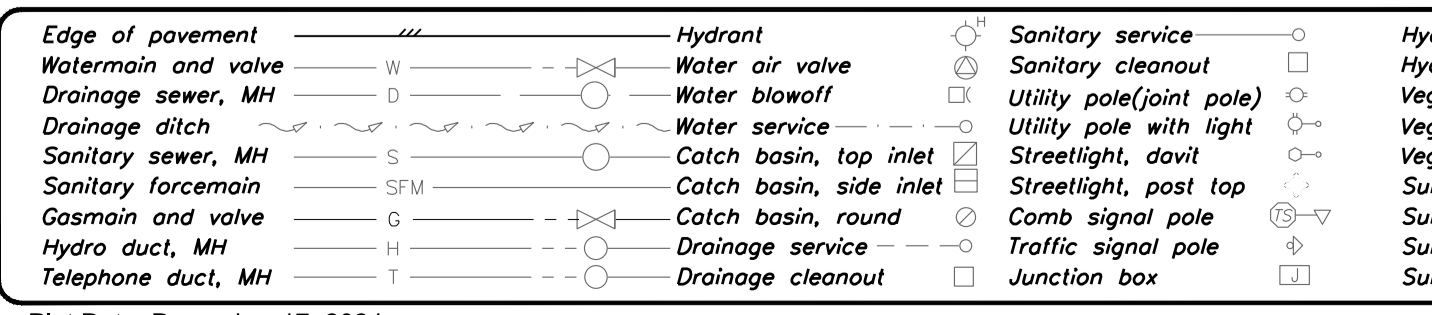
- GENERAL**
- THE CONTRACTOR SHALL SUBMIT A WORK PLAN TO THE CITY OUTLINING THE SEQUENCING OF THE WORKS FOR THE PILE SUPPORTED DUCTILE IRON SANITARY SECTION. THE WORK PLAN SHALL INCLUDING:
    - SCHEDULE AND SEQUENCE
    - STAGING PLANS
    - TRAFFIC MANAGEMENT PLANS
    - SHOP DRAWINGS OF HELICAL PILES, DUCTILE IRON PIPE, JOINT RESTRAINTS
    - MILL CERTIFICATES FOR THE QUALITY AND GRADE OF THE STEEL ASSOCIATED WITH THE HELICAL PILES.
    - LAYOUT OF PROPOSED HELICAL PILES.
  - REFER TO KONTUR GEOTECHNICAL CONSULTANTS INC. GEOTECHNICAL MEMO AND TECHNICAL REPORT FOR DETAILS RELATED TO THE HELICAL PILE DESIGN.
    - MEMORANDUM - HELICAL PILE DESIGN, AUSTIN HEIGHTS SEWER UPGRADE PHASE 2, NOVEMBER 9, 2023.
    - GEOTECHNICAL EXPLORATION AND REPORT, AUSTIN HEIGHTS SEWER AND PAVEMENT RESTORATION - PHASE 3 & 4 NEAR AUSTIN AVENUE AND SCHOOLHOUSE STREET, COQUITLAM BC. FEBRUARY 6, 2023.
  - THE PROFILE DRAWING SHOWS PRELIMINARY SPACING OF HELICAL PILES AND APPROXIMATE EMBEDMENT DEPTHS. SPACING TO BE AS DICTATED BY THE LOCATIONS OF THE BELL AND SPIGOTS OF THE 5.5M DI LENGTHS AND GEOTECHNICAL REQUIREMENTS.
  - THE CONTRACTOR SHALL COORDINATE WITH THE GEOTECHNICAL ENGINEER TO ARRANGE FOR ENGINEERING FIELD REVIEWS AS REQUIRED. THE GEOTECHNICAL ENGINEER SHALL WITNESS:
    - A TEST HELICAL PILES SECTION WITH CONSULTATION WITH GEOTECH TO CONFIRM EMBEDMENT
    - PROOF TESTING DURING THE INITIAL STAGE OF CONSTRUCTION TO CONFIRM DESIGN CAPACITIES.
    - INSTALLATION AND TORQUE MEASUREMENTS DURING THE INSTALLATION OF ALL PILES
  - HELICAL PILES TO CONSIST OF 88.9mm (3.5 IN.) OUTSIDE DIAMETER PIPE WITH A MINIMUM 8mm PIPE THICKNESS AND MINIMUM YIELD STRENGTH OF 300MPA, OR APPROVED EQUIVALENT WITH THREE HELIXES OF 150mm, 200mm, AND 250mm (6 IN., 8 IN., AND 10 IN.) (INCREASING DIAMETER FROM BOTTOM UP). HELICES FOR EACH PILE SHOULD BE SPACED VERTICALLY AT 600mm (24 IN.) BETWEEN THE BOTTOM AND MIDDLE HELICES AND 750mm (30 IN.) BETWEEN THE MIDDLE AND TOP HELICES. ADDITIONAL 2mm FOR CORROSION PROTECTION PURPOSES HAS BEEN INCLUDED IN THE HELICAL PILE SHAFT WALL THICKNESS SHOWN ABOVE.
  - EACH HELICAL PILE SHALL PENETRATE SUFFICIENTLY THROUGH THE SURFACE FILLS AND BE EMBEDDED AT LEAST 2m INTO THE UNDERLYING DENSE TO VERY DENSE SOILS. THE HELICAL PILES SHOULD BE EMBEDDED SUCH THAT ALL THREE HELICES ARE EMBEDDED INTO THE DENSE TO VERY DENSE SOILS. THE ANTICIPATED PILE LENGTH IS BETWEEN 7.5m AND 10.5m. FINAL EMBEDMENT DEPTHS SHALL BE CONFIRMED BY THE GEOTECHNICAL ENGINEER DURING INSTALLATION BASED ON SITE CONDITIONS ENCOUNTERED.
  - FOR THE PART OF THE PROPOSED SANITARY SEWER LOCATED AT THE EXISTING 9000 AND 12000 CULVERTS CROSSING, HELICAL PILES TO CONSIST OF 88.9mm (3.5" ) OUTSIDE DIAMETER PIPE WITH A MINIMUM 8mm PIPE THICKNESS AND MINIMUM YIELD STRENGTH OF 300MPA, OR APPROVED EQUIVALENT WITH THREE HELICES OF 300mm, 350mm, AND 400mm (12 IN., 14 IN., AND 16 IN.) (INCREASING DIAMETER FROM BOTTOM UP). HELICES FOR EACH PILE SHOULD BE SPACED VERTICALLY AT 1050mm (42 IN.) BETWEEN THE BOTTOM AND MIDDLE HELICES AND 1200mm (48 IN.) BETWEEN THE MIDDLE AND TOP HELICES. ADDITIONAL 2mm FOR CORROSION PROTECTION PURPOSES HAS BEEN INCLUDED IN THE HELICAL PILE SHAFT WALL THICKNESS SHOWN ABOVE.
 

THE DEPTHS OF THE HELICAL PILES AT THE LOCATIONS OF THE ABOVE-MENTIONED EXISTING CULVERTS SHOULD NOT EXCEED 5.3m BELOW EXISTING GROUND SURFACE TO PROVIDE A 1.5m MINIMUM CLEARANCE FROM THE CROWN OF THE CULVERTS.
  - PILES SHALL BE SPACED AT 2.75m ON CENTRES.
  - HELICAL PILES MUST BE LOCATED SUCH THAT DO THEY NOT CONFLICT WITH ANY BURIED SERVICES/STRUCTURES THAT MAY BE PRESENT AND SHOULD BE LOCATED IN THE FIELD BY THE CONTRACTOR PRIOR TO DRILLING. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM THAT EXISTING INFRASTRUCTURE/BURIED SERVICES DO NOT CONFLICT WITH THE PROPOSED NEW HELICAL PILES.
  - HELICAL PILES MAY NOT BE ABLE TO PENETRATE THROUGH THE FILLS ZONE DUE TO DENSITY AND/OR PRESENCE OF COBBLES/OBSTRUCTIONS. IF HELICAL PILES ENCOUNTER PRACTICAL REFUSAL WITHIN THE FILL ZONE, EMPLOYING ALTERNATE DRILLING METHODS MAY BE REQUIRED SUBJECT TO GEOTECHNICAL REVIEW.



0 H 1:500 20m  
 0 V 1:50 2m

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No.	Date	By	Revisions
1	2024-12-17	SL	ISSUED FOR TENDER

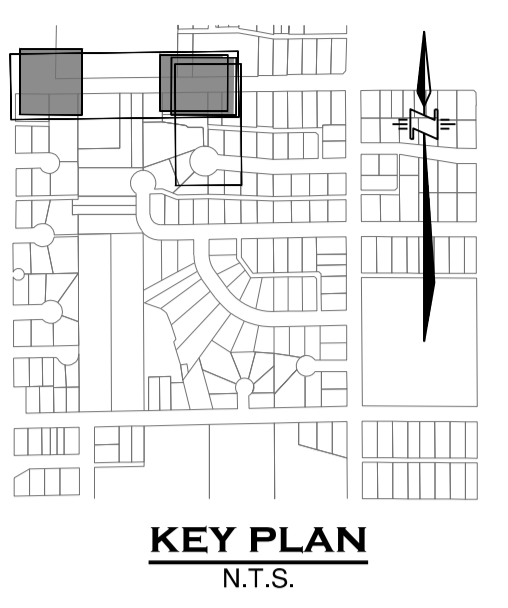
Design by	Date	2024-12-17
Drawn by	Date	2024-12-17
Checked by	Date	2024-12-17
Approved by	Date	2024-12-17



Scale	1:500	Scale	1:50
horiz.		vert.	
Sheet	04	of	06
Eng. Project No.	21-0989		

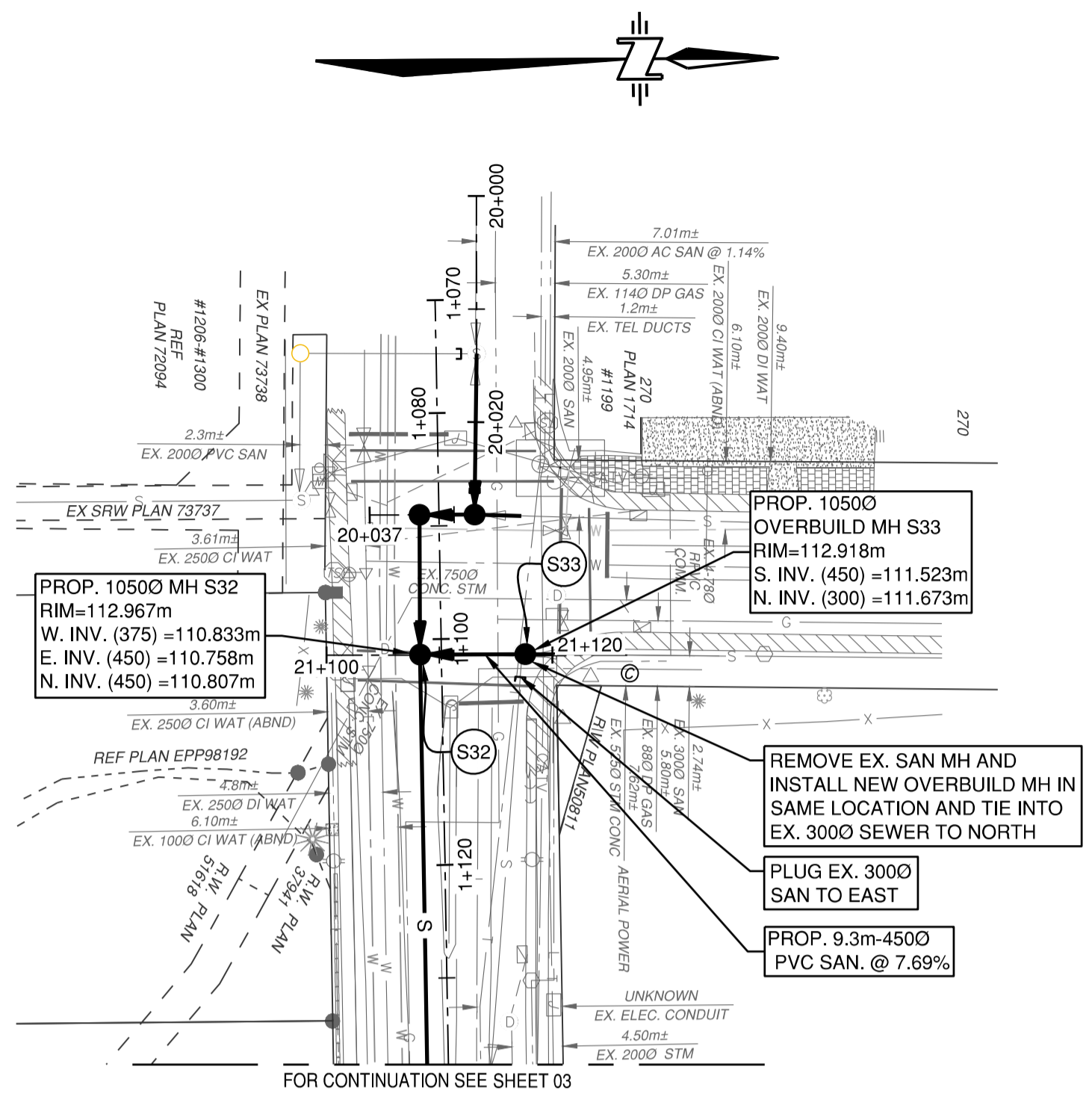
Project	AUSTIN AVE		
Description	GATENSBUARY ST TO #1390 AUSTIN AVE		
File	21-0989-1-S2		
REV.	1		

PERMIT TO PRACTICE # 1001128  
**NOT FOR CONSTRUCTION**  
**ISSUED FOR TENDER**

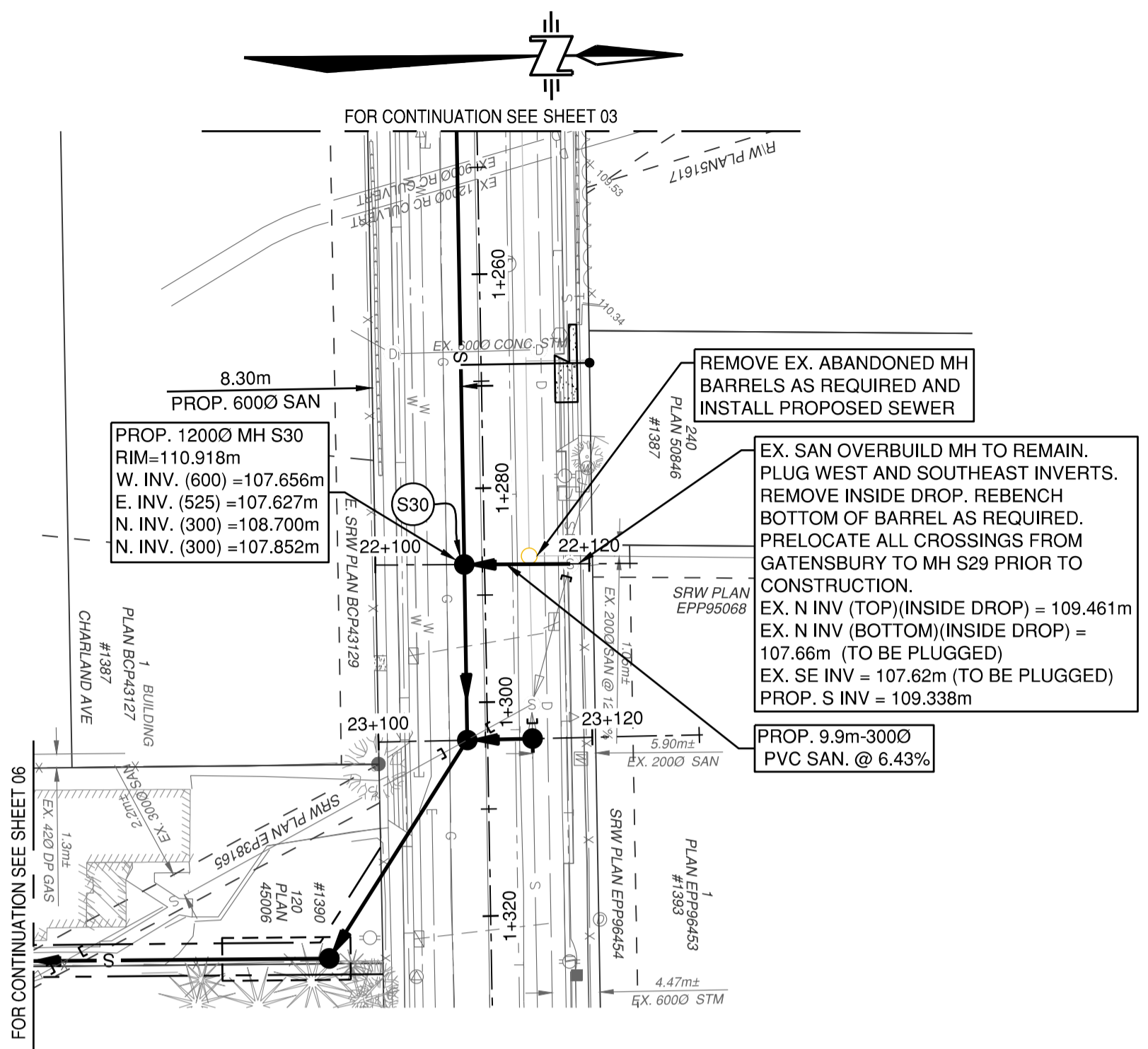


**BENCHMARK:**  
 SURVEY CONTROL MONUMENT 77H5621 LOCATED AT  
 SOUTH INTERSECTION OF GATENSURBY ST & AUSTIN AVE  
 ELEVATION=113.411M (CGVD28 (GVRD 2018))

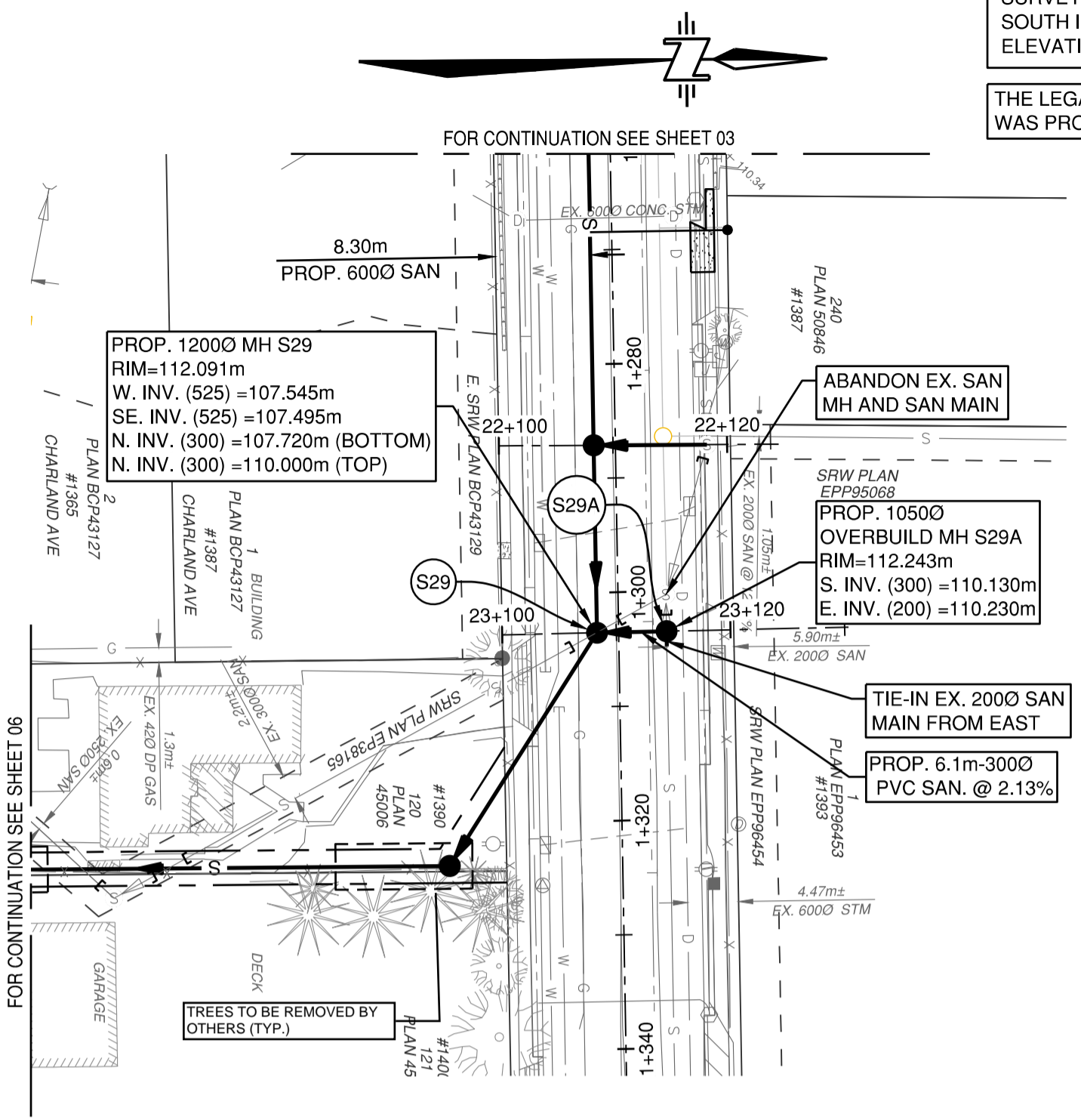
THE LEGAL BASE USED TO PREPARE THESE DRAWINGS  
 WAS PROVIDED BY CITY OF COQUITLAM.



**AUSTIN AVE**



**#1387 AUSTIN AVE**



**#1387 AUSTIN AVE**

	115		115		115		115
	114		114		114		114
	113		113		113		113
	112		112		112		112
	111		111		111		111
	110		110		110		110
	109		109		109		109
	108		108		108		108
	107		107		107		107
	106		106		106		106
	105		105		105		105
PROP. SAN ELEV.	110.833 W 110.807 N 110.798 E	111.673 N 111.523 S	107.655 W 107.627 E 108.700 N (TOP) 107.660 N (BOTTOM) 109.461 N (TOP) 107.620 E	107.545 W 107.720 N (BOTTOM) 110.000 N (TOP) 107.495 SE 110.130 S 110.230 W 110.230 E			
EX. SAN ELEV		111.636 E 111.673 N EX. 3000 SAN					
STATION	21+100 21+108.289 21+117.605 21+120	21+140	22+100 22+108.311 22+118.228 22+120	22+140	23+100 23+108.304 23+114.396 23+120	23+140	

0 H 1:500 20m  
 0 V 1:50 2m

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 Ltd. It is the contractor's responsibility to ensure that he is in possession of the latest revision of this drawing.

PERMIT TO PRACTICE # 1001128  
**NOT FOR CONSTRUCTION**  
**ISSUED FOR TENDER**

- Edge of pavement
- Watermain and valve
- Drainage sewer, MH
- Drainage ditch
- Sanitary sewer, MH
- Sanitary forcemain
- Gasmain and valve
- Hydro duct, MH
- Telephone duct, MH
- Hydrant
- Water air valve
- Water blowoff
- Water service
- Catch basin, top inlet
- Catch basin, side inlet
- Catch basin, round
- Drainage service
- Drainage cleanout
- Sanitary service
- Sanitary cleanout
- Utility pole (joint pole)
- Utility pole with light
- Streetlight, down
- Streetlight, post top
- Comb signal pole
- Traffic signal pole
- Junction box
- Hydro Guy Wire
- Hydro Kiosk
- Vegetation Conifer
- Vegetation Deciduous
- Vegetation Shrub
- Survey Traverse Hub
- Survey Iron Pin
- Survey Lead Plug
- Survey Monument

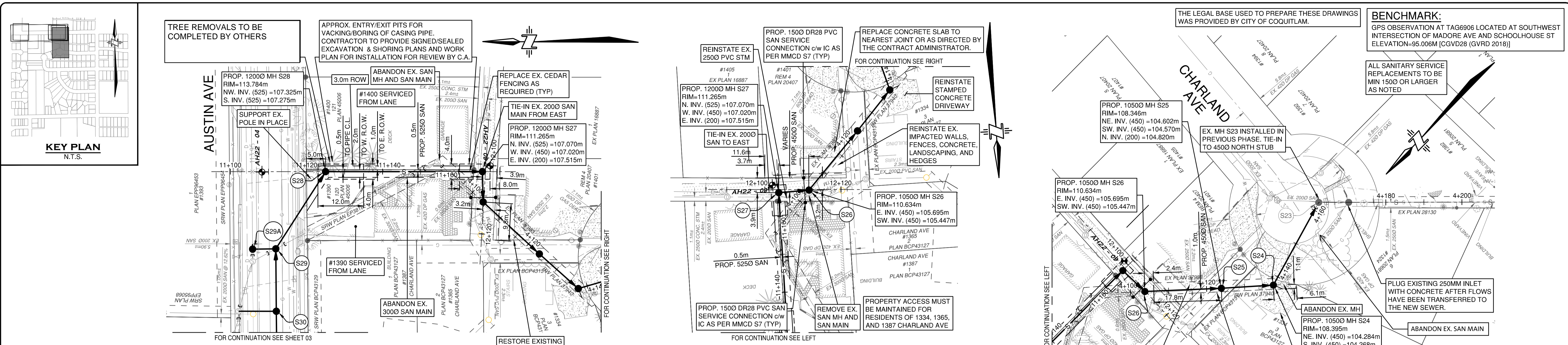
No.	Date	By	Revisions
2	2024-12-17	SL	ISSUED FOR TENDER
1	2024-05-03	JD	ISSUED FOR 100% DESIGN

Design by	Date	2024-12-17
Drawn by	Date	2024-12-17
Checked by	Date	2024-12-17
Approved by	Date	2024-12-17

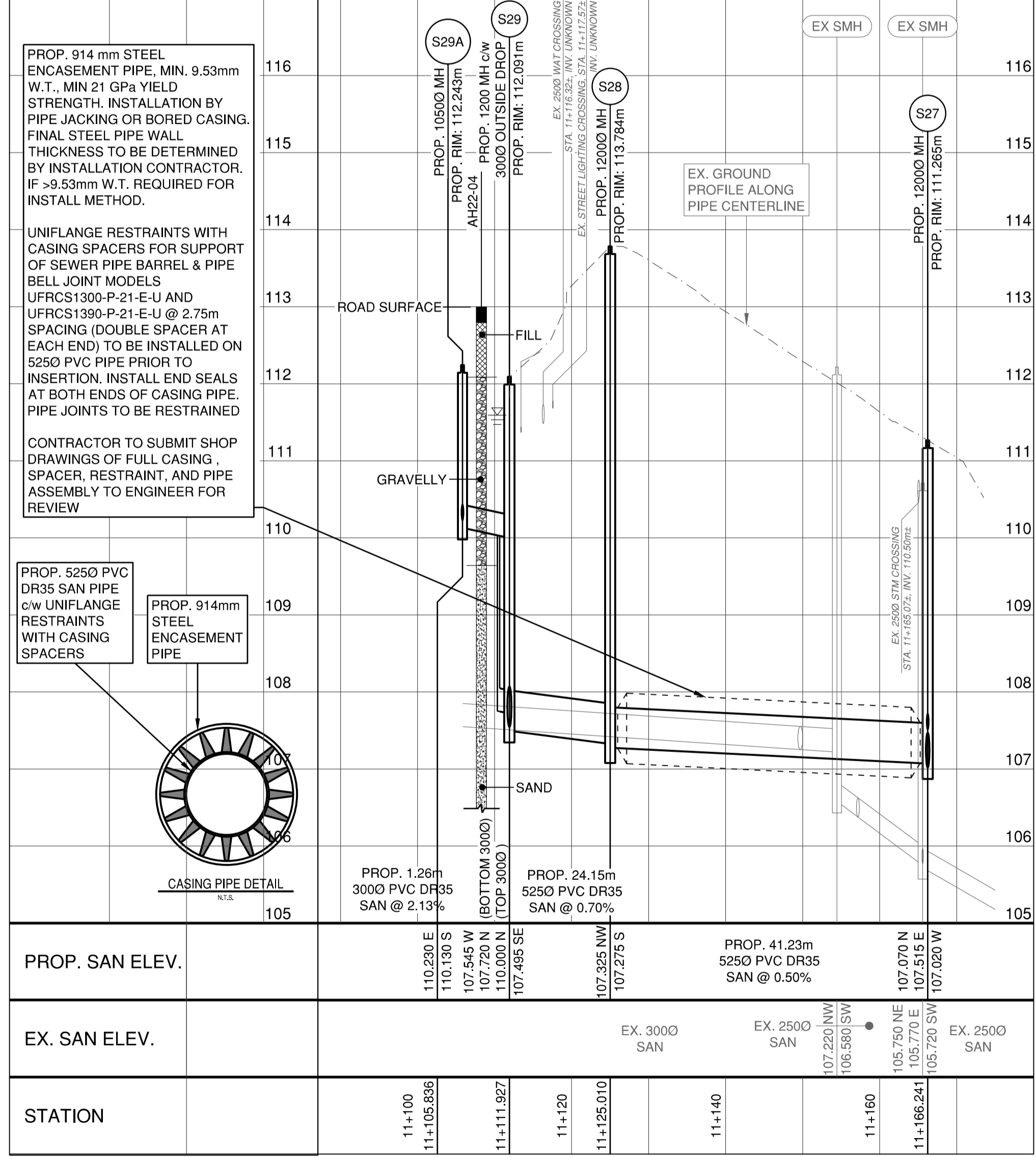


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horiz.	05	vert.	06
Sheet	of		
Eng. Project No.	21-0989		

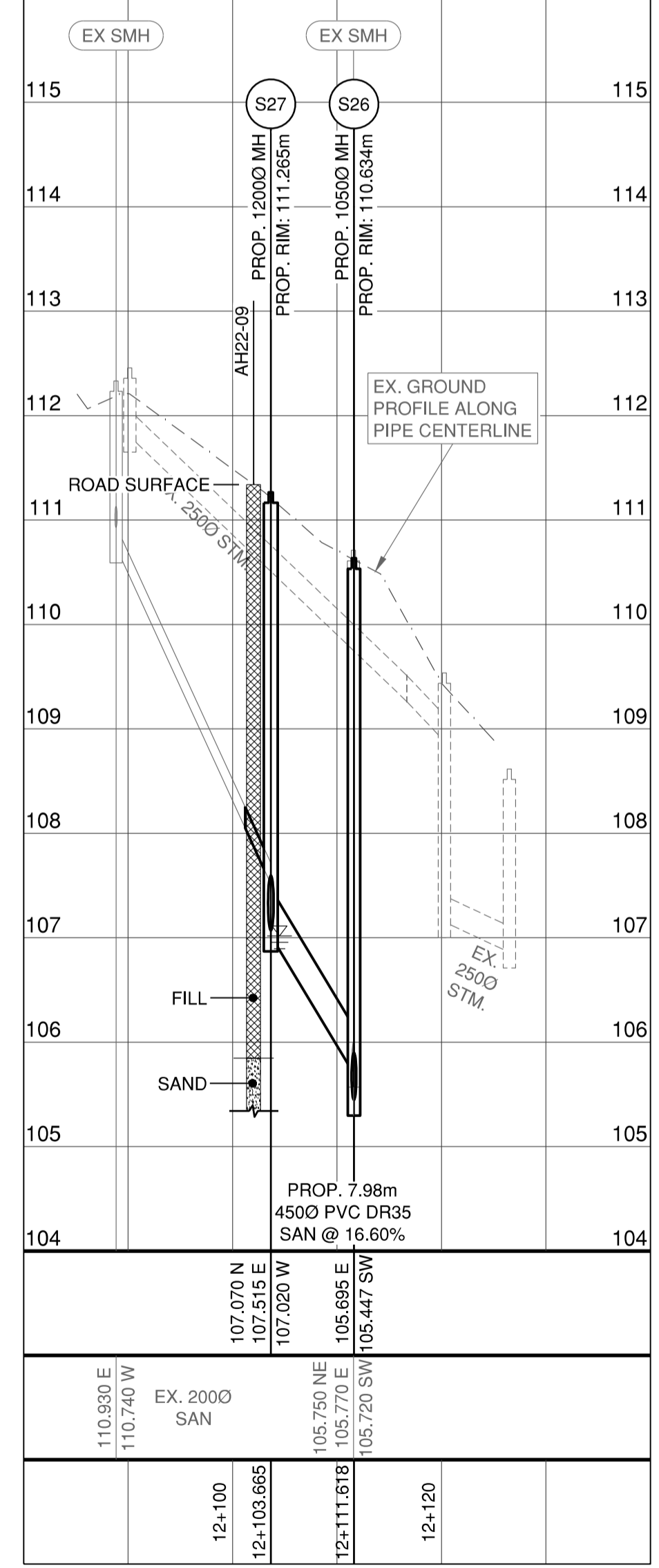
Project	AUSTIN AVE
Description	GATENSURBY ST AND #1387 AUSTIN AVE SANITARY SEWER - PLAN AND PROFILE
File	21-0989-1-S3
REV.	1



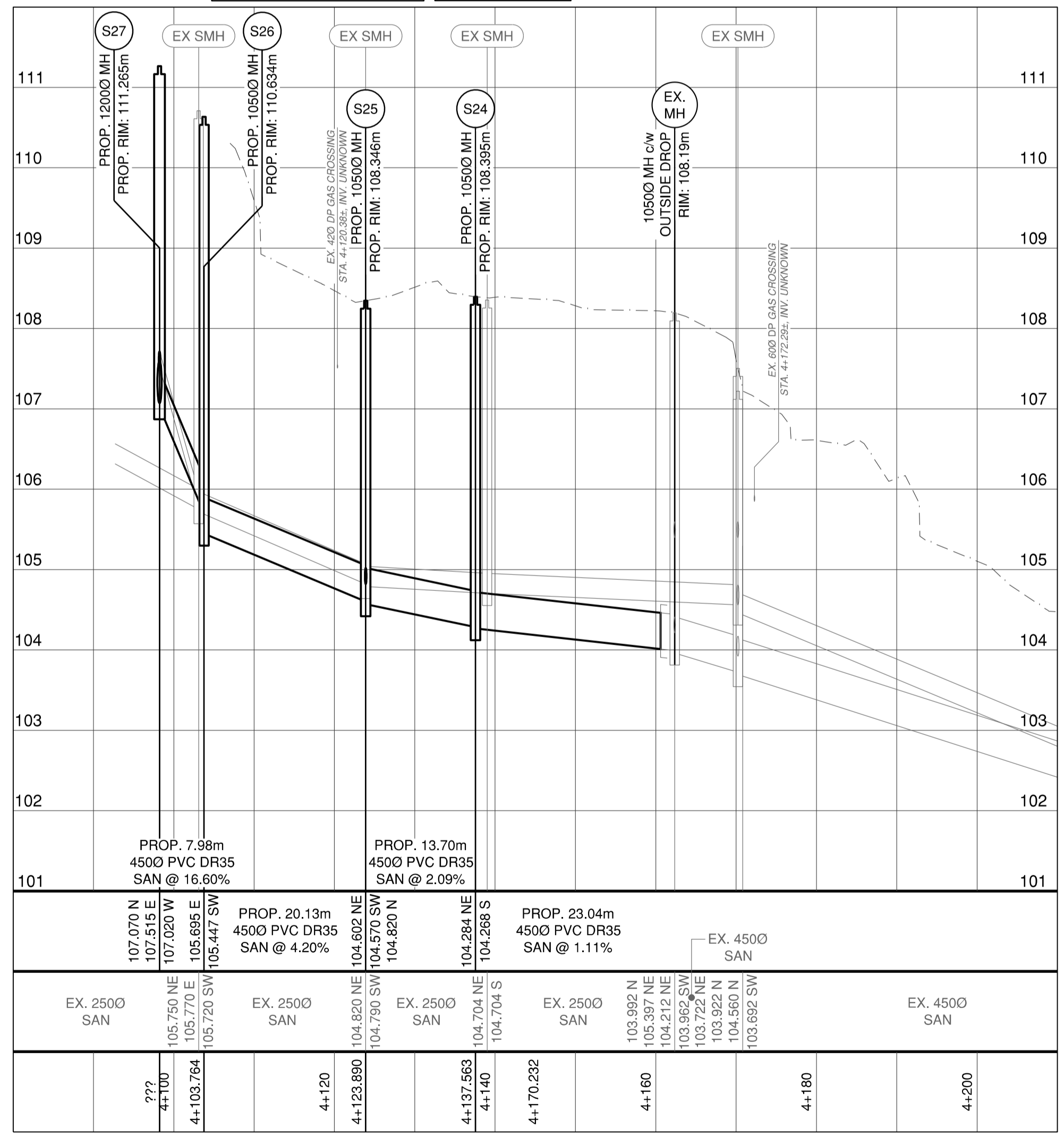
**SRWEP 38165 & PLAN 37983**



**LANE S OF AUSTIN AVE**



**PLAN 28130**



0 H 1:500 20m  
0 V 1:50 2m

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Edge of pavement	Hydrant	Sanitary service	Hydro Guy Wire
Watermain and valve	Water air valve	Sanitary cleanout	Hydro Kiosk
Drainage ditch, MH	Water blowoff	Utility pole (joint pole)	Vegetation Conifer
Sanitary sewer, MH	Water service	Utility pole with light	Vegetation Deciduous
Sanitary sewer, MH	Catch basin, top inlet	Streetlight, down	Vegetation Shrub
Sanitary sewer, MH	Catch basin, side inlet	Streetlight, post top	Survey Traverse Hub
Gasmain and valve	Catch basin, round	Comb signal pole	Survey Iron Pin
Hydro duct, MH	Drainage service	Traffic signal pole	Survey Lead Plug
Telephone duct, MH	Drainage cleanout	Junction box	Survey Monument

No.	Date	By	Revisions
2	2024-12-17	SL	ISSUED FOR TENDER
1	2024-05-03	JD	ISSUED FOR 100% DESIGN

Design by	Date	2024-12-17
Drawn by	Date	2024-12-17
Checked by	Date	2024-12-17
Approved by	Date	2024-12-17

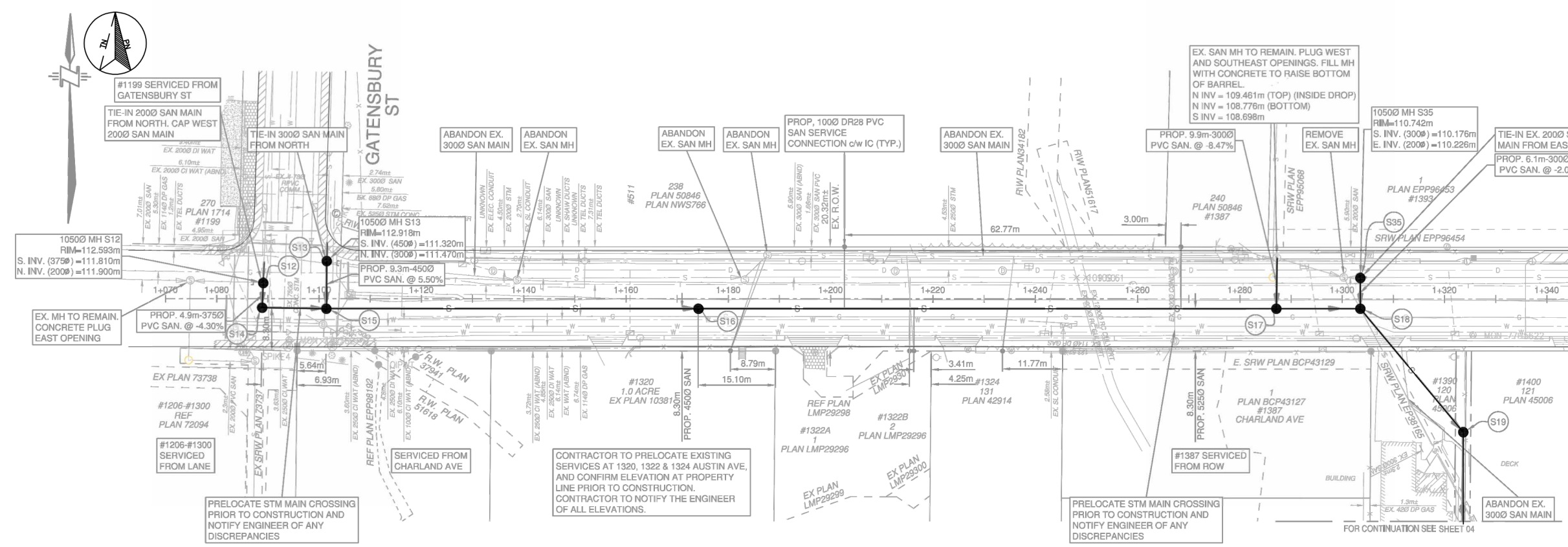


Scale	1:500	Scale	1:50
horiz.		vert.	
Sheet	06	of	06
Eng. Project No.	21-0989		

Project	ROW - PLAN 28130, PLAN 37940, PLAN 37983, & SRWEP 38165
Description	AUSTIN AVE TO KARP CRT SANITARY SEWER - PLAN AND PROFILE
File	21-0989-4-S4
REV.	1

NOT FOR CONSTRUCTION  
ISSUED FOR TENDER

PERMIT TO PRACTICE # 1001128



**AUSTIN AVE**

**SANITARY PIPE UPGRADE – PLAN VIEW**

H = 1:500 V = 1:50

PILE CAP TO BE INSTALLED AT LOCATIONS SHOWN ON CIVIL DRAWINGS. EXTENTS OF PILES TO BE COORDINATED WITH GEOTECHNICAL DETAILS.

**GENERAL NOTES**

**1. DESIGN CODES:**

THE BASE STRUCTURE SHOWN ON THE STRUCTURAL DRAWING HAS BEEN DESIGNED IN ACCORDANCE WITH THE BC BUILDING CODE 2018.

DO NOT SCALE DRAWINGS. CONTRACTOR SHALL CONFIRM ALL FIELD DIMENSIONS AND VERIFY ALL DIMENSIONS, ELEVATIONS, CONDITIONS AND SCOPE OF WORK PRIOR TO PROCUREMENT OF MATERIALS AND AGAIN PRIOR TO COMMENCEMENT OF CONSTRUCTION.

THIS DRAWING MUST BE READ IN CONJUNCTION WITH ANY AND ALL DESIGN DOCUMENTS RELATED TO THE PROJECT. THE NOTES, PLANS, DETAILS AND SPECIFICATIONS MUST BE READ TOGETHER AS ONE DOCUMENT.

CONTRACTOR TO COORDINATE WITH CIVIL AND GEOTECHNICAL DRAWINGS AND DOCUMENTS FOR ALL ITEMS SHOWN ON THESE DRAWINGS AND REPORT ANY DISCREPANCIES OR INCONSISTENCIES BETWEEN THE DRAWINGS, FIELD CONDITIONS, DESIGN DOCUMENTS OR SITE INSTRUCTIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BRING THESE TO THE ATTENTION OF CASCADIAN STRUCTURAL ENGINEERING INC. AND THE RELEVANT DISCIPLINES PRIOR TO COMMENCEMENT OF CONSTRUCTION. FAILING TO DO SO WOULD RENDER THE CONTRACTOR RESPONSIBLE FOR ANY CHANGES OR ALTERATIONS RESULTING FROM ERRORS AND OMISSIONS IN THESE DRAWINGS.

THESE DRAWINGS SHOW THE COMPLETED STRUCTURE ONLY. CONTRACTOR IS RESPONSIBLE FOR MEANS AND METHODS OF CONSTRUCTION AND WORKER SAFETY ON THE SITE.

THE USE OF THESE DRAWINGS IS LIMITED TO THE USE INDICATED IN THE DRAWING REVISION COLUMN. DO NOT CONSTRUCT FROM DRAWINGS UNLESS NOTED AS "ISSUED FOR CONSTRUCTION"

ANY CODE APPLICABLE TO THE DESIGN OF THIS STRUCTURE, AS PRESENTED IN THE DRAWINGS, APPLIES TO THE DESIGN OF STRUCTURAL ELEMENTS WHICH ARE THE RESPONSIBILITY OF OTHERS TO BE DESIGNED BY SPECIALTY STRUCTURAL ENGINEERS.

**2. DESIGN LOADS:**

DEAD LOAD: SELF WEIGHT OF PIPE AND CONTENTS ( $\gamma = 19 \text{ kN/m}^3$  (120 pcf))  
 LIVE LOAD: NO LIVE LOAD TRANSFER  
 AVERAGE DEPTH: 4m

**3. FOUNDATIONS:**

FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE SOILS REPORT  
 PREPARED BY: KONTUR GEOTECHNICAL CONSULTANTS  
 PROJECT No: K-221126-00  
 DATED: FEBRUARY 6, 2023.

ALL FOUNDATION GROUND PREPARATION WORK IS OUTSIDE THE SCOPE OF WORK FOR CASCADIAN STRUCTURAL ENGINEERING INC. AND MUST BE PROVIDED BY OTHERS UNDER PROFESSIONAL RESPONSIBILITY OF A GEOTECHNICAL ENGINEER.

PREPARE ALL FOUNDATIONS BEARING STRATA, BACKFILL, DRAINAGE MATERIAL, STRUCTURAL FILL, SLAB OR ASPHALT SUB-BASE AND OTHER GEOTECHNICAL ASPECTS IN ACCORDANCE WITH THE REPORT AND RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.

BEARING SURFACES MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER IMMEDIATELY BEFORE FOUNDATION CONCRETE IS PLACED. CASCADIAN STRUCTURAL ENGINEERING INC. IS NOT RESPONSIBLE FOR CONFIRMING BEARING CAPACITY OF SOILS.

REFER TO SOILS REPORT FOR OTHER SPECIFIC DESIGN REQUIREMENTS FOR FOUNDATIONS, SOIL SLOPES, FROST PROTECTION, MINIMUM COVER, ETC.

**FOOTINGS**

CONCRETE CAST IN FOOTINGS WITH STANDING WATER SHALL CONFORM TO CSA A23 AND BE PLACED UNDER THE FULL TIME SUPERVISION OF THE SPECIAL INSPECTOR.

BEARING SURFACES MUST BE PROTECTED FROM FREEZING BEFORE AND AFTER FOUNDATIONS ARE POURED.

FOOTINGS CAST DIRECTLY INTO EXCAVATIONS (WITHOUT SIDE FORMS) SHALL NOT BE LARGER THAN 150mm BEYOND FOOTING DIMENSIONS SHOWN ON PLAN AT BASE WITH A MIN. 2:1 SLOPE CUT BACK.

**4. CONCRETE:**

CONCRETE DESIGN CONFORMS TO LATEST EDITION OF CAN/CSA-23.3. ALL CONCRETE CONSTRUCTION WORK SHALL CONFORM TO CAN/CSA 23.1. AT THE EXPENSE OF THE CONTRACTOR, CONCRETE STRENGTHS TO BE VERIFIED BY INDEPENDENT TESTS TO CAN/CSA23.2. TEST RESULTS SHALL BE SUBMITTED TO CASCADIAN STRUCTURAL ENGINEERING INC. PRIOR TO ACCEPTANCE OF WORK.

CONCRETE SHALL BE STONE CONCRETE WITH A UNIT WEIGHT OF 23.6 KN/M3 (150 PCF). CEMENT SHALL BE PORTLAND CEMENT TYPE 10, U.N.O. CONTRACTOR TO SUBMIT CONCRETE MIX DESIGNS TO CASCADIAN STRUCTURAL ENGINEERING INC. AND THE TESTING AGENCY FOR ACCEPTANCE PRIOR TO COMMENCEMENT.

CONCRETE STRENGTH SHALL BE AS PER THE FOLLOWING MINIMUM REQUIREMENTS:

MINIMUM SPECIFIED:  
 28 DAY CONCRETE STRENGTH: 35MPa  
 EXPOSURE CLASSIFICATION: C-1

SLUMP TOLERANCES ARE 30mm FOR SLUMPS LARGER THAN 80mm. LOWER SLUMPS MAY BE USED SUBJECT TO APPROVAL BY CASCADIAN STRUCTURAL ENGINEERING INC.

ALL CONCRETE ADMIXTURES MUST BE APPROVED IN ADVANCE.

CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN OF ALL FORMWORK, MECHANICAL VIBRATORS SHALL BE USED THROUGHOUT TO PROPERLY CONSOLIDATE CONCRETE. USE KEYED CONSTRUCTION JOINTS AS DIRECTED BY CASCADIAN STRUCTURAL ENGINEERING INC. OR AS SHOWN ON DRAWINGS.

CURING AND PROTECTION OF CONCRETE FOR HOT, COLD OR DRY WEATHER - AS PER CSA A23.1. WHEN TEMPERATURE IS EXPECTED TO FALL BELOW 5 DEGREES CELSIUS WITHIN 3 DAYS OF POUR, CONTRACTOR SHALL NOTIFY CASCADIAN STRUCTURAL ENGINEERING INC. OF THE FOLLOWING:

- PROVISIONS FOR HEATING FRESH CONCRETE
- PROVISIONS FOR HEATING CONCRETE IN FORMS
- ALTERATIONS IN MIX DESIGNS
- PROVISIONS FOR CURING

DO NOT REMOVE FORMS UNTIL A MINIMUM 24 HOURS AFTER POUR AND CONCRETE HAS ATTAINED A MINIMUM STRENGTH OF 15MPa. FORMWORK MAY NOT BE STRIPPED UNTIL CONCRETE HAS REACHED MINIMUM 70% OF THE SPECIFIED CONCRETE STRENGTH AND VERIFICATION OF CONCRETE STRENGTH BY FIELD CURED CONCRETE CYLINDERS.

**5. REINFORCING STEEL NOTES:**

REINFORCEMENT SHALL BE BILLET STEEL CONFORMING TO THE FOLLOWING STANDARDS:

GRADE 400 MPa 10M AND LARGER U.N.O. CSA G30.18  
 ALL REINFORCEMENT THAT WILL BE WELDED OR IS PART OF THE SEISMIC RESISTING ELEMENTS (WELDABLE GRADE) CSA G30.18

DO NOT USE EPOXY COATED REINFORCING U.N.O.  
 USE NEW, CLEAN AND UNMATERIALIZED REINFORCING. RUSTED BARS ARE NOT PERMITTED.  
 BARS TO BE BENT TO SPECIFICATIONS NOTED IN ACCORDANCE WITH CSA STANDARDS. ON-SITE BENDING TO BE DONE WITH APPROVED BENDING PROCEDURES. DO NOT STRAIGHTEN AND RE-BEND BARS. AT THE DISCRETION OF CASCADIAN STRUCTURAL ENGINEERING INC., REINFORCEMENT THAT IS SUSPECT MAY BE REQUIRED TO BE TESTED AT THE EXPENSE OF THE CONTRACTOR.

CONCRETE COVER IN INCHES OVER REINFORCEMENT SHALL BE:  
 FOOTINGS AND PLACED IN CONTACT WITH GROUND 75mm (3")

**6. STRUCTURAL STEEL NOTES:**

ALL STRUCTURAL STEEL TO MEET OR EXCEED THE APPLICABLE CSA STANDARDS FOR THAT PRODUCT. PROTECT ALL MATERIALS FROM WEATHERING AND DAMAGE DURING STORAGE AND INSTALLATION. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW AND APPROVAL BY CASCADIAN STRUCTURAL ENGINEERING INC. AND ALL OTHER APPLICABLE DISCIPLINES PRIOR TO FABRICATION. STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION TO CAN/CSA-S16.1

STRUCTURAL STEEL TO CONFORM TO CSA G40.20/G40.21 U.N.O.

AT THE DISCRETION OF CASCADIAN STRUCTURAL ENGINEERING INC. STEEL, WELDS AND BOLTS MAY BE REQUIRED TO BE INSPECTED BY AN INDEPENDENT TESTING AGENCY AT THE EXPENSE OF THE OWNER. REPORTS FROM TESTING ARE TO BE SENT TO CASCADIAN STRUCTURAL ENGINEERING INC. FOR RECORDS AND REVIEW. THE FABRICATOR MAY SUBMIT ALTERNATE DETAILS AND CONNECTIONS TO CASCADIAN STRUCTURAL ENGINEERING INC. FOR REVIEW AND APPROVAL.

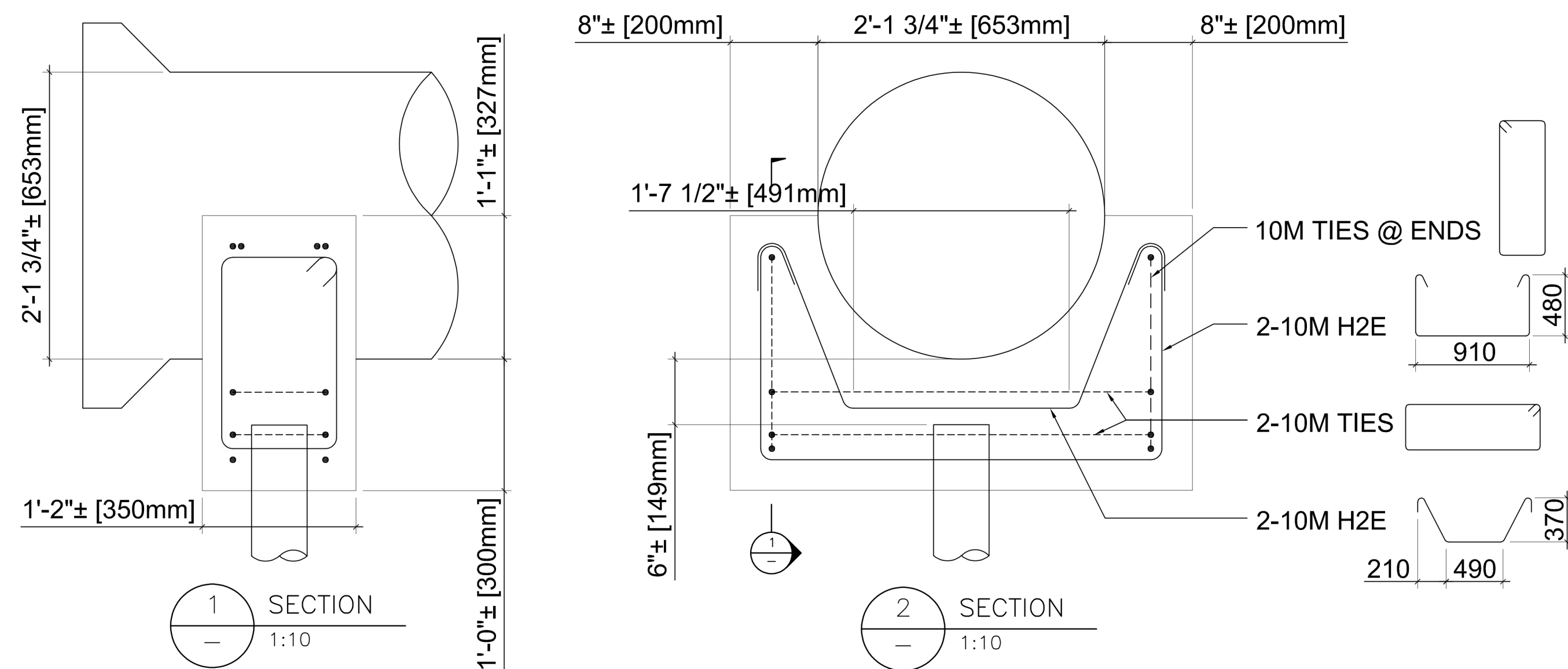
OPENINGS IN STEEL COMPONENTS TO BE NOTED ON APPROVED SHOP DRAWINGS. NO CORING OR DRILLING OF HOLES THROUGH STRUCTURAL STEEL COMPONENTS IS PERMITTED WITHOUT PRIOR APPROVAL BY CASCADIAN STRUCTURAL ENGINEERING INC.

MEMBER GRADES  
 W AND HSS: GRADE 350W

**7. FIELD REVIEWS:**

WRITTEN APPROVAL FROM CASCADIAN STRUCTURAL ENGINEERING INC. IS REQUIRED PRIOR TO PROCEEDING:  
 STRUCTURAL STEEL, PRIOR TO CONCEALMENT OR LOADING.  
 REINFORCING STEEL, PRIOR TO CONCRETE POUR.  
 POST-INSTALLED ANCHORS, PRIOR TO LOADING.

PROVIDE A MINIMUM OF THREE WORK DAYS NOTICE TO CASCADIAN STRUCTURAL ENGINEERING INC. FOR ALL REVIEWS.  
 CONTRACTOR TO CONFIRM ALL SHOP DRAWINGS HAVE BEEN APPROVED BY CASCADIAN STRUCTURAL ENGINEERING INC. PRIOR TO INSTALLATION OF SHOP DRAWING ITEMS.  
 ANY DISCREPANCIES NOTED BETWEEN DOCUMENTS MUST BE COMMUNICATED IN WRITING TO CASCADIAN STRUCTURAL ENGINEERING INC. FOR REVIEW PRIOR TO FIELD REVIEW.  
 ANY SITE SPECIFIC HAZARDS THAT MAY IMPACT STRUCTURAL ELEMENTS MUST BE COMMUNICATED IN WRITING TO CASCADIAN STRUCTURAL ENGINEERING INC. UPON DISCOVERY.



2	RE-ISSUED FOR CONSTRUCTION	2024.12.17
1	ISSUED FOR CONSTRUCTION	2023.11.09
0	ISSUED FOR REVIEW	2023.10.20
No.	REVISION ISSUE	DATE YYYY.MM.DD

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**SEAL**

EGBC PERMIT No. 1003923



230-21900 Westminister Highway  
 Richmond, BC  
 Canada, V6V 0A8  
 info@cascadianeng.com

PROJECT NAME:  
**AUSTIN HEIGHTS SEWER UPGRADES AND PAVEMENT REHABILITATION**

PROJECT ADDRESS:  
 AUSTIN AVENUE,  
 COQUITLAM, BC  
 CSE Project Number: 23157

DRAWING NUMBER:  
**S01**

DRAWING TITLE:  
 SANITARY PIPE UPGRADE PILES  
 PLAN VIEW, SECTIONS, AND  
 GENERAL NOTES

DRAWN BY:	DESIGN BY:	SCALE:
PP	NS	AS NOTED
DRAWING DATE: YYYY.MM.DD	REVISION NUMBER:	
2024.12.17	2	

