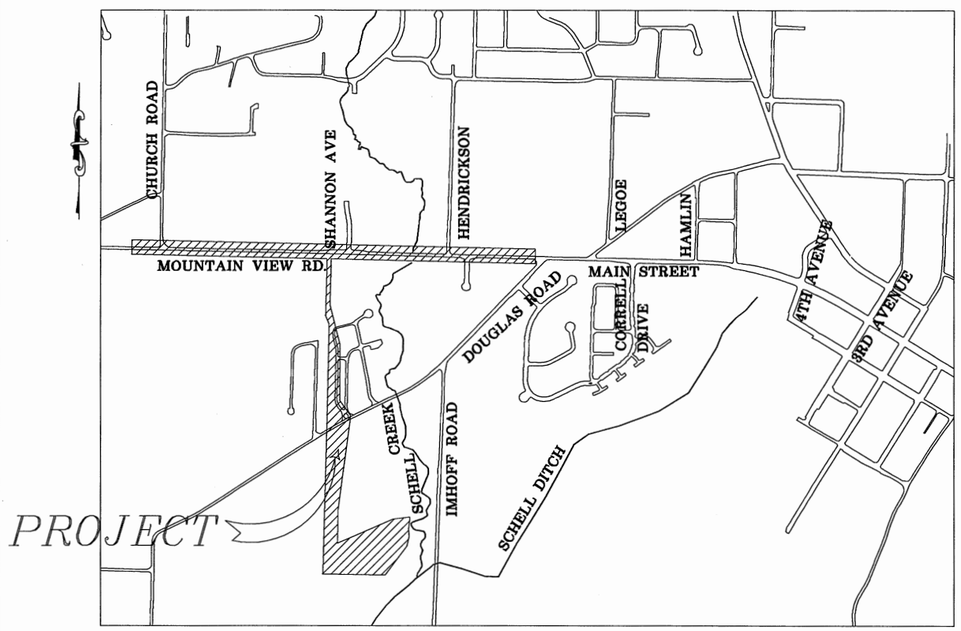
MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
CITY OF FERNDALE
CITY No. ST2012-01

VICINITY MAP
NTS



SHEET INDEX

1 COVER SHEET

2 LEGEND

3 EXISTING CONDITIONS STA 1+00 TO 5+00

4 EXISTING CONDITIONS STA 5+00 TO 9+00

5 EXISTING CONDITIONS STA 9+00 TO 13+00

6 EXISTING CONDITIONS STA 13+00 TO 17+00

7 EXISTING CONDITIONS STA 17+00 TO 23+00

8 EXISTING CONDITIONS STA 23+00 TO 29+00

9 EXISTING CONDITIONS STA 29+00 TO 32+00

10 EROSION CONTROL PLAN DETAILS

11 EROSION CONTROL PLAN STA 5+00 TO 11+00

12 EROSION CONTROL PLAN STA 11+00 TO 23+00

13 EROSION CONTROL PLAN STA 23+00 TO 32+00

14 MAINLINE SIGNEL LANE CLOSURE

15 LANE CLOSURE AT INTERSECTION

16 TRUCK & PASSENGER VEHICLE DETOUR

17 DEMOLITION PLAN STA 1+00 TO 11+00

18 DEMOLITION PLAN STA 11+00 TO 23+00

19 DEMOLITION PLAN STA 23+00 TO 32+00

20 PLAN & PROFILE STA 1+00 TO 5+00

21 PLAN & PROFILE STA 5+00 TO 9+00

22 PLAN & PROFILE STA 9+00 TO 13+00

23 PLAN & PROFILE STA 13+00 TO 17+00

24 PLAN & PROFILE STA 17+00 TO 23+00

25 PLAN & PROFILE STA 23+00 TO 29+00

26 PLAN & PROFILE STA 29+00 TO 32+00

27 STRUCTURAL EARTH WALL PLAN & PROFILE

28 NORTH & SOUTH RETAINING WALLS PLANS & PROFILES

29 PROPOSED CULVERT PLAN & PROFILE

30 PROPOSED CULVERT & WALL DETAILS

31 PROPOSED CULVERT & WALL DETAILS

32 GRADING PLAN STA 1+00 TO 11+00

33 GRADING PLAN STA 11+00 TO 23+00

34 GRADING PLAN STA 23+00 TO 32+00

35 LANDSCAPE PLAN STA 1+00 TO 11+00

36 LANDSCAPE PLAN STA 11+00 TO 23+00

37 LANDSCAPE PLAN STA 23+00 TO 32+00

38 CHANNELIZATION & SIGNAGE PLAN STA 1+00 TO 32+00

39 SIGN SCHEDULE

40 WATER DETAIL SHEET

41 SEWER DETAIL SHEET

42 MISC. DETAIL SHEET

43 BLOCKWALL DETAIL SHEET

44 TYPICAL SECTIONS

STORMWATER FACILITY CONVEYANCE

55 DEMOLITION PLAN

56 PLAN & PROFILE (POND TERMINUS) STA 1+00 TO 6+00

57 PLAN & PROFILE STA 1+00 TO 7+00

58 PLAN & PROFILE STA 7+00 TO 12+50

59 PLAN & PROFILE STA 12+50 TO 18+50

60 PLAN & PROFILE STA 18+50 TO 24+50

61 PLAN & PROFILE STA 24+50 TO 27+50

STORMWATER FACILITY

45 TESC AND DEMOLITION PLAN

46 GRADING PLAN

47 CROSS SECTIONS

48 ACCESS ROAD

49 ACCESS ROAD

50 ACCESS ROAD

51 DETAIL SHEET

52 DETAIL SHEET

53 DETAIL SHEET

54 DETAIL SHEET

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) COVER SHEET

JOB# / DWG	DATE
08018.P2b 08018_SP1	3-30-12
SCALE H:n/a V:n/a	SHEET 1

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ABBREVIATIONS

AC	= ASBESTOS CEMENT	FL	= FLOW LINE	N	= NORTH	SCH	= SCHEDULE
ASPH	= ASPHALT	FF	= FINISHED FLOOR	OC	= ON CENTER	S	= SOUTH
BLDG	= BUILDING	FG	= FINISHED GRADE	PVMNT	= PAVEMENT	STD	= STANDARD
CATV	= CABLE TELEVISION	FT/FT	= FEET PER FOOT	PED	= PEDESTAL	SP	= STANDARD PLAN
CL	= CLASS, CENTERLINE	F&C	= FRAME AND COVER	PCC	= POINT OF COMPOUND CURVATURE	STA	= STATION
COMP	= COMPACTED	F&G	= FRAME AND GRATE	PC	= POINT OF CURVATURE	SDCB	= STORM DRAIN CATCH BASIN
CONC	= CONCRETE	IW	= INJECTION WELL	PRC	= POINT OF REVERSE CURVE	SDMH	= STORM DRAIN MANHOLE
C & G	= CURB & GUTTER	IE, INV	= INVERT ELEVATION	PT	= POINT OF TANGENCY		
CPDP	= CORRUGATED POLYETHYLENE DRAIN PIPE	L	= LENGTH	POC	= POINT ON CURVE	TEL	= TELEPHONE
		LF	= LINEAR FEET	PVC	= POLYVINYL CHLORIDE	TL	= TRAFFIC LOOP
ø	= DIAMETER	LOC	= LOCATION	PCC	= PORTLAND CEMENT CONCRETE	TYP	= TYPICAL
DI	= DUCTILE IRON	MAX	= MAXIMUM	POSS	= POSSIBLE	UP	= UTILITY POLE
E	= EAST	MPOC	= MID-POINT ON CURVE	PROP	= PROPOSED	VLT	= VAULT
EOP, EP	= EDGE OF PAVEMENT	MIN	= MINIMUM	R	= RADIUS	WSDOT	= WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
EX, EXIST	= EXISTING	MOD	= MODIFIED	ROW	= RIGHT OF WAY		
IR	= EXISTING IRRIGATION	MW	= MONITORING WELL	R&C	= RING AND COVER	W	= WEST
SN	= EXISTING SIGN	MON	= MONUMENT	SSMH	= SANITARY SEWER MANHOLE	WM	= WATER METER

EXISTING

- = EX TOE OF BANK
- = EX TOE OF BANK
- = EX OVERHEAD POWER
- = EX CONCRETE
- = EX MAJOR CONTOUR
- = EX MINOR CONTOUR
- = EX CULVERT
- = EX DITCH CL
- = EX FENCE
- = EX FIBER OPTICS LINE
- = EX GAS MAIN
- = EX GUARDRAIL
- = EX GRAVEL
- = EX PROPERTY BOUNDARY
- = EX POWER LINE
- = EX ROAD CL
- = EX EDGE OF PAVEMENT
- = EX RIGHT OF WAY
- = EX TREE LINE
- = EX STORM DRAIN
- = EX TRAFFIC SIGNAL CONDUCTOR
- = EX SANITARY SEWER
- = EX TRAFFIC STRIPING
- = EX PARKING STRIPING
- = EX TOP OF BANK
- = EX TELEPHONE LINE
- = EX TV LINE
- = EX WATER LINE
- = EX SIDEWALK
- = EX WETLANDS BOUDARY
- = EX EASEMENT
- = EX GRADE BREAK
- = EX SANITARY SEWER FORCE MAIN
- = EX FLOWLINE
- = EXISTING RR TRACKS
- = EX BUILDING
- = EX WETLAND
- = EX MONITORING WELL
- = EX SOIL BORING LOCATION
- = EX GUY WIRE
- = EX STORM CLEANOUT
- = EX SEWER CLEANOUT
- = EX JBOX
- = EX STREET LIGHT
- = EX MAIL BOX
- = EX WATER METER
- = EX WATER SPIGOT
- = EX WATER VALVE
- = EX FIRE HYDRANT
- = EX TRAFFIC SIGNAL VAULT
- = EX SEWER MANHOLE
- = EX STORM DRAIN CATCH BASIN TYPE I
- = EX STORM DRAIN CATCH BASIN TYPE II
- = EX UTILITY POLE
- = EX GAS METER
- = EX TRANSFORMER PAD
- = EX POWER VAULT
- = EX SIGN
- = EX TELEPHONE PEDESTAL
- = EX SIGNAL POLE AND ARM W/ LUMINAIRE
- = EX TREE
- = EX VEGETATION

PROPOSED

- = PROPOSED DITCH CL
- = PROPOSED BUILDING
- = PROPOSED TOE OF BANK
- = PROPOSED CONDUIT
- = PROPOSED TOP OF BANK
- = PROPOSED MAJOR CONTOUR
- = PROPOSED MINOR CONTOUR
- = PROPOSED FENCE
- = PROPOSED HANDRAIL
- = PROPOSED CONSTRUCTION EASEMENT
- = PROPOSED SANITARY SEWER FORCE MAIN
- = PROPOSED FIBER OPTICS
- = PROPOSED GRADE BREAK
- = PROPOSED GAURDRAIL
- = PROPOSED GRAVEL
- = PROPOSED PATH
- = PROPOSED PARKING STRIPE
- = PROPOSED TRAFFIC STRIPE
- = PROPOSED ROCK WALL
- = PROPOSED BACK OF CURB
- = PROPOSED ROAD CL
- = PROPOSED ROAD EDGE OF PAVEMENT
- = PROPOSED ROAD FACE OF CURB
- = PROPOSED ROAD LIP OF GUTTER
- = PROPOSED RIGHT OF WAY
- = PROPOSED SAWCUT
- = PROPOSED STORM DRAIN
- = PROPOSED TRAFFIC SIGNAL CONDUCTOR
- = PROPOSED SILT FENCE
- = PROPOSED SANITARY SEWER
- = PROPOSED TREE LINE
- = PROPOSED WATERMAIN
- = PROPOSED SIDEWALK
- = PROPOSED PAVEMENT VALLEY
- = REMOVE EX SDCB OR SDMH
- = REMOVE EX SSMH
- = PROPOSED CONCRETE DEMOLITION AREA
- = PROPOSED GRIND AREA
- = PROPOSED GRIND LINE
- = PROPOSED ASPHALT DEMOLITION AREA
- = PROPOSED ASPHALT APRON
- = PROPOSED CSTC DRIVEWAY
- = PROPOSED PLANTER/SEEDING
- = PROPOSED BUILDING
- = PROPOSED MONITORING WELL
- = PROPOSED STORM DRAIN CATCH BASIN TYPE I
- = PROPOSED STORM DRAIN CATCH BASIN TYPE II
- = PROP STORM CLEANOUT
- = PROPOSED STORM DRAIN INLET
- = PROPOSED SANITARY SEWER MANHOLE
- = PROPOSED SANITARY SEWER MANHOLE
- = PROPOSED SANITARY SEWER CLEAN OUT
- = PROPOSED HYDRANT
- = PROPOSED WATER METER
- = PROPOSED WATER VALVE
- = PROPOSED COUPLER
- = PROPOSED UTILITY POLE
- = PROPOSED SIGN
- = FLOW ARROW
- = PROPOSED TREE

MICHAEL L. KOOY — STATE OF WASHINGTON — 47681 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

LUIS RANCE — STATE OF WASHINGTON — 38378 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

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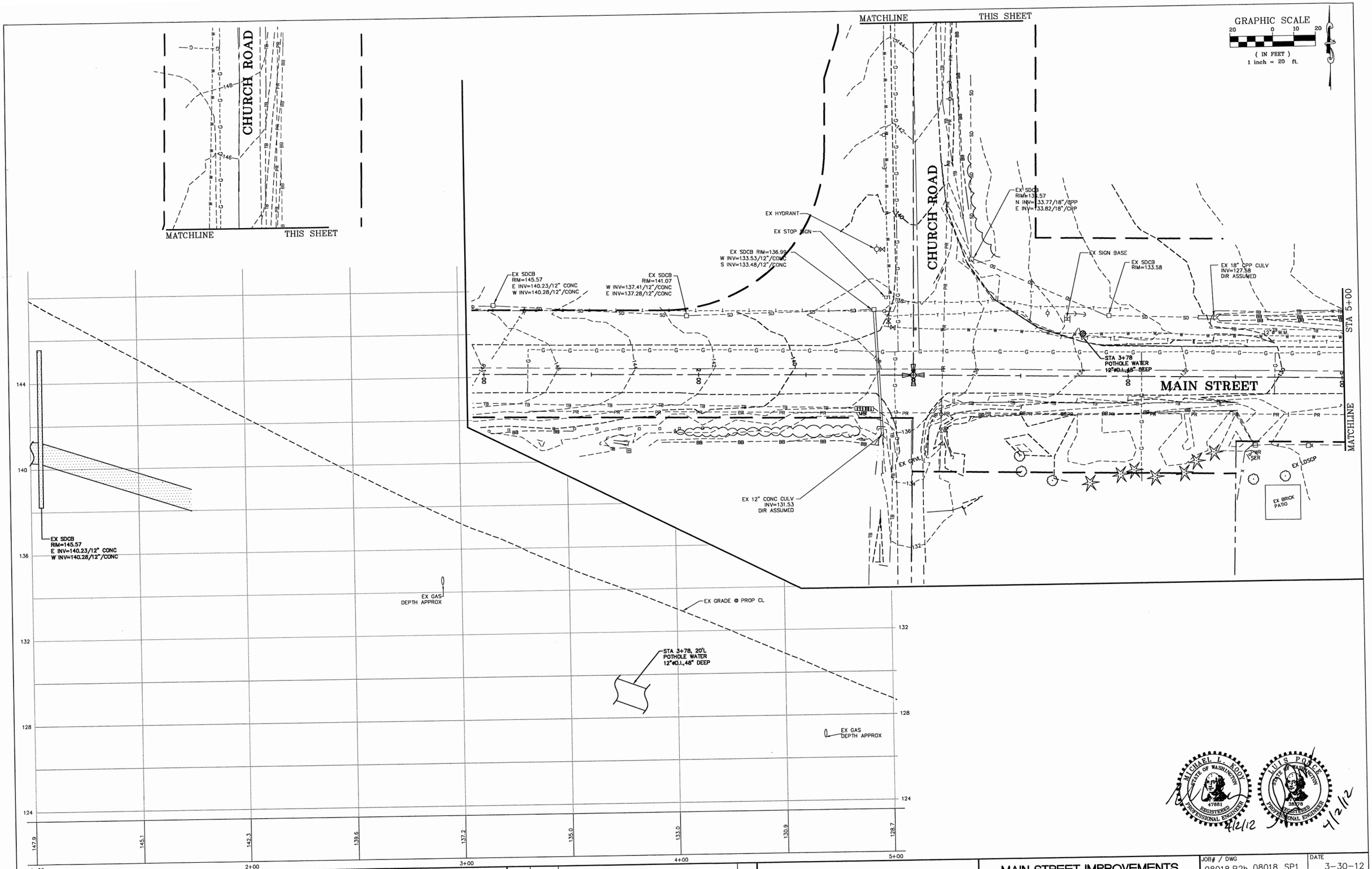
DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) LEGEND AND ABBREVIATIONS	JOB# / DWG 08018.P2b 08018_SP1 SCALE H:n/a V:n/a	DATE 3-30-12 SHEET 2



MICHAEL L. KNOY STATE OF WASHINGTON 47681 REGISTERED PROFESSIONAL ENGINEER 4/2/12

LUIS POLICE STATE OF WASHINGTON 38378 REGISTERED PROFESSIONAL ENGINEER 4/2/12

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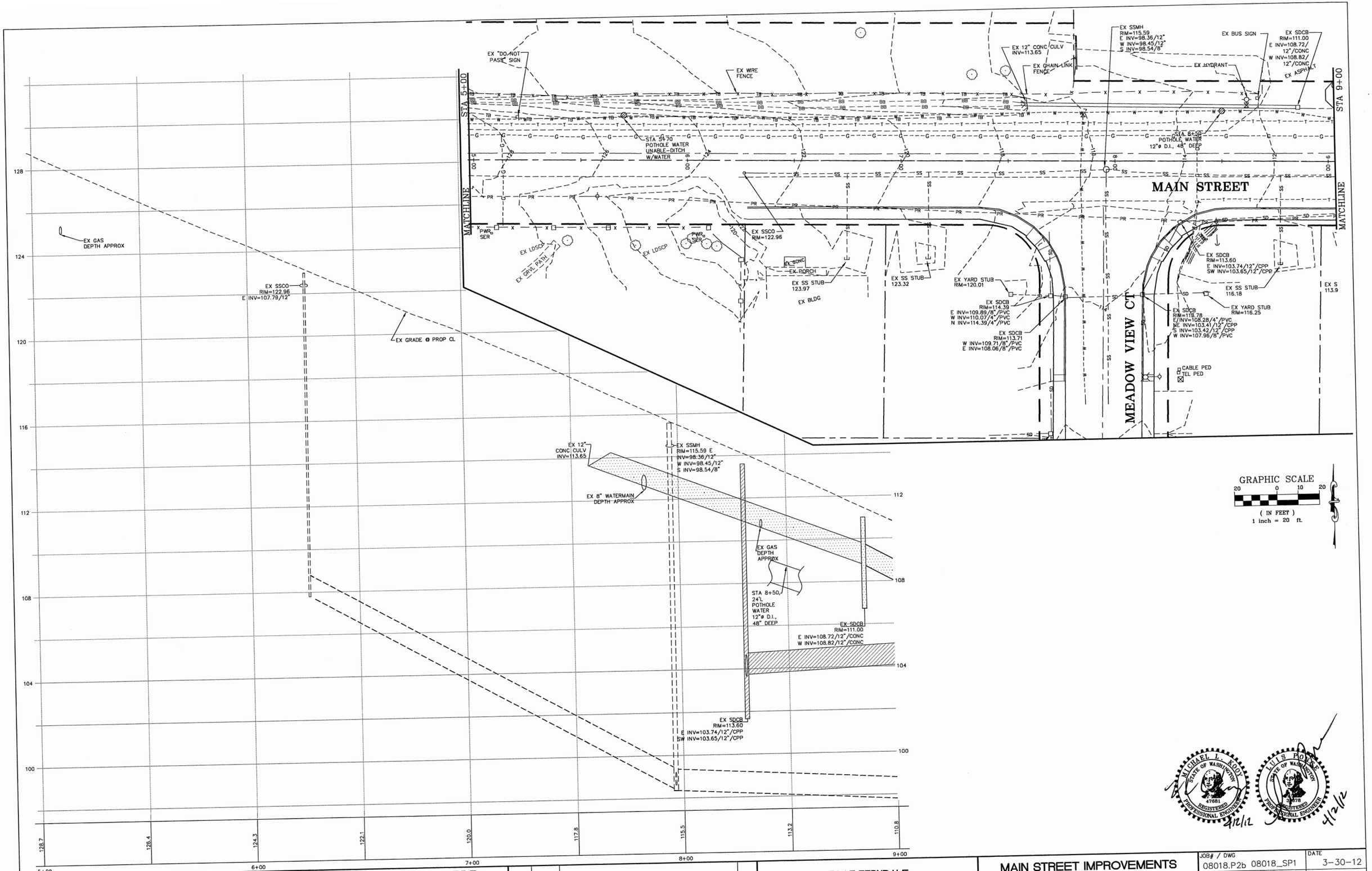

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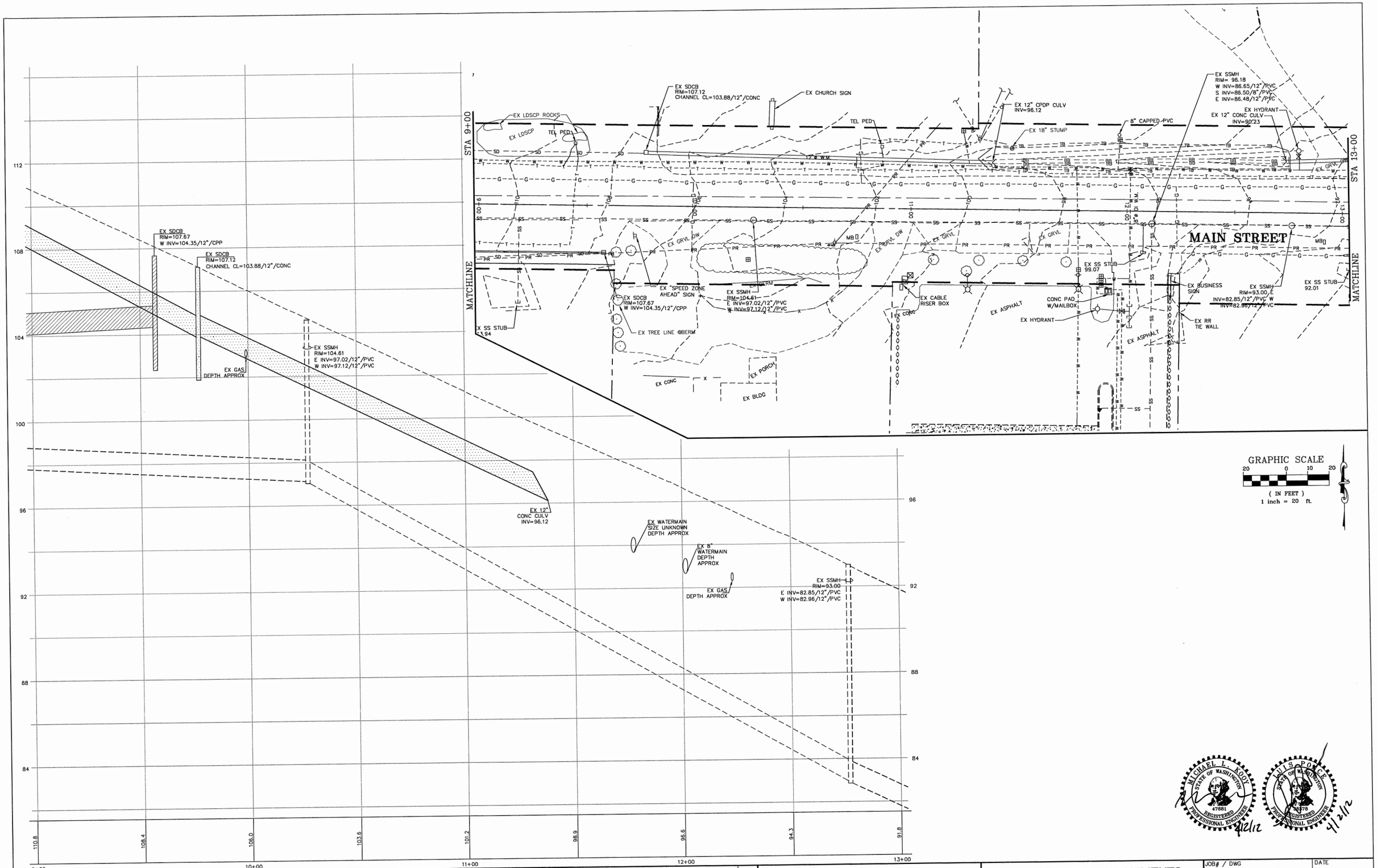

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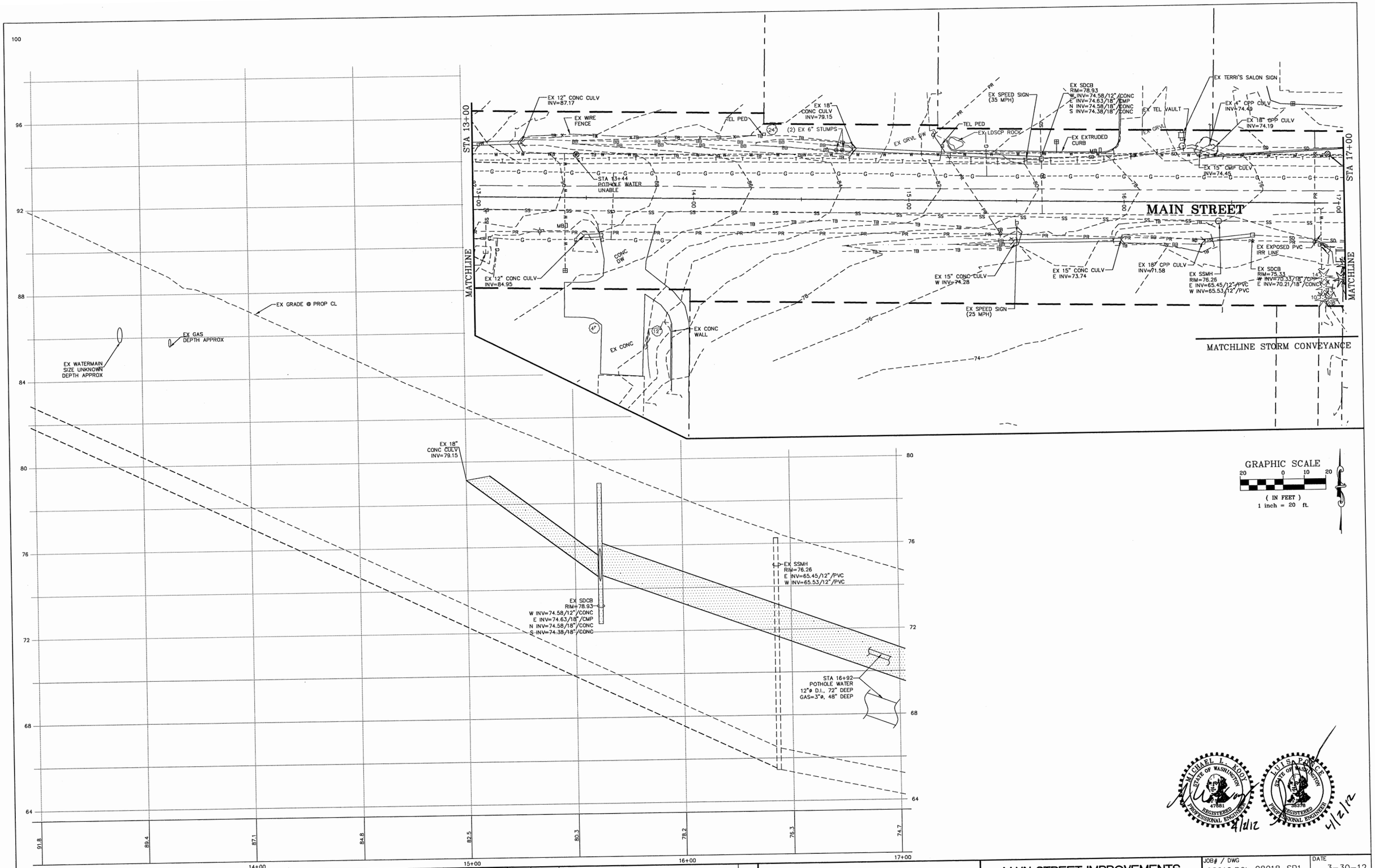

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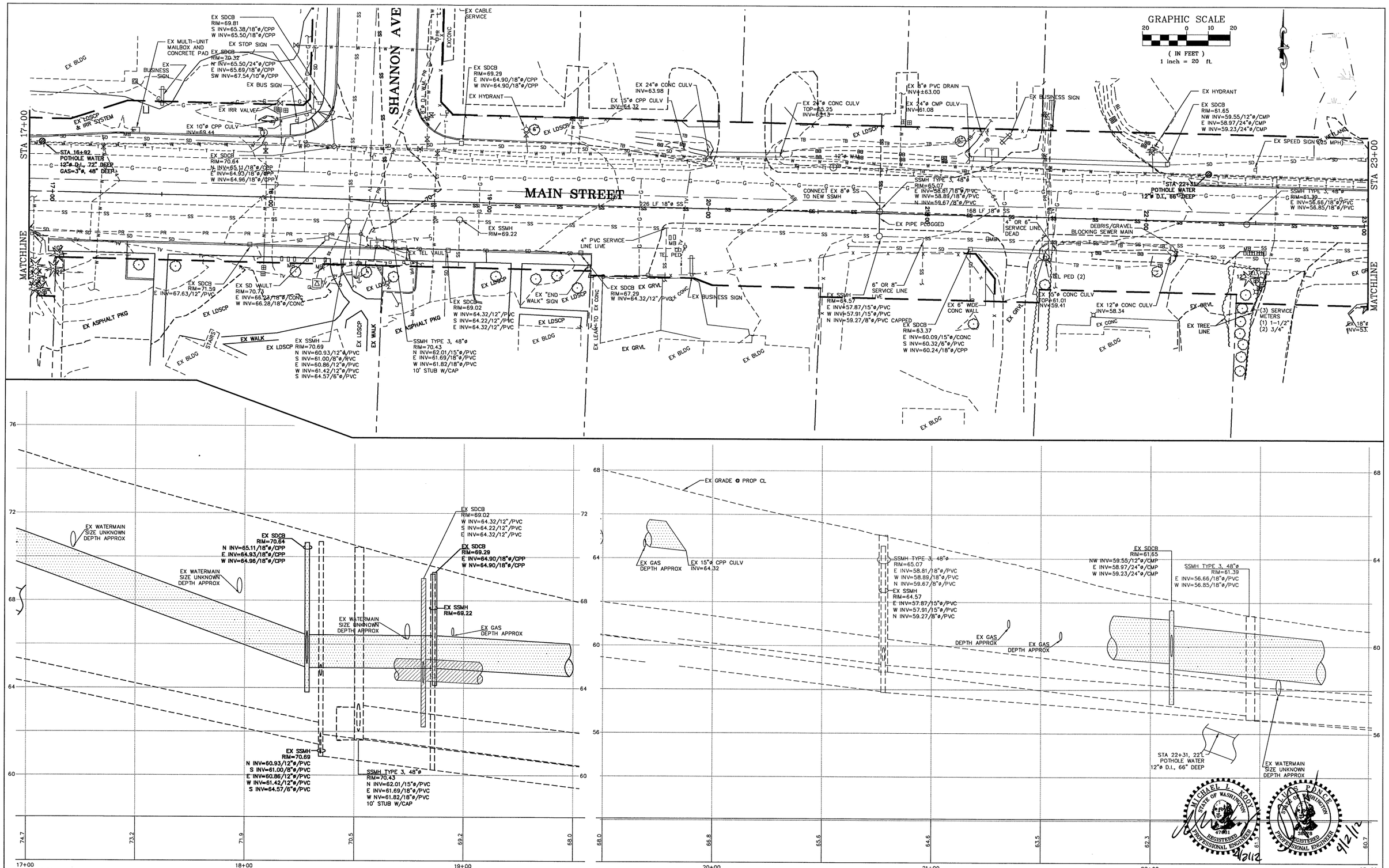

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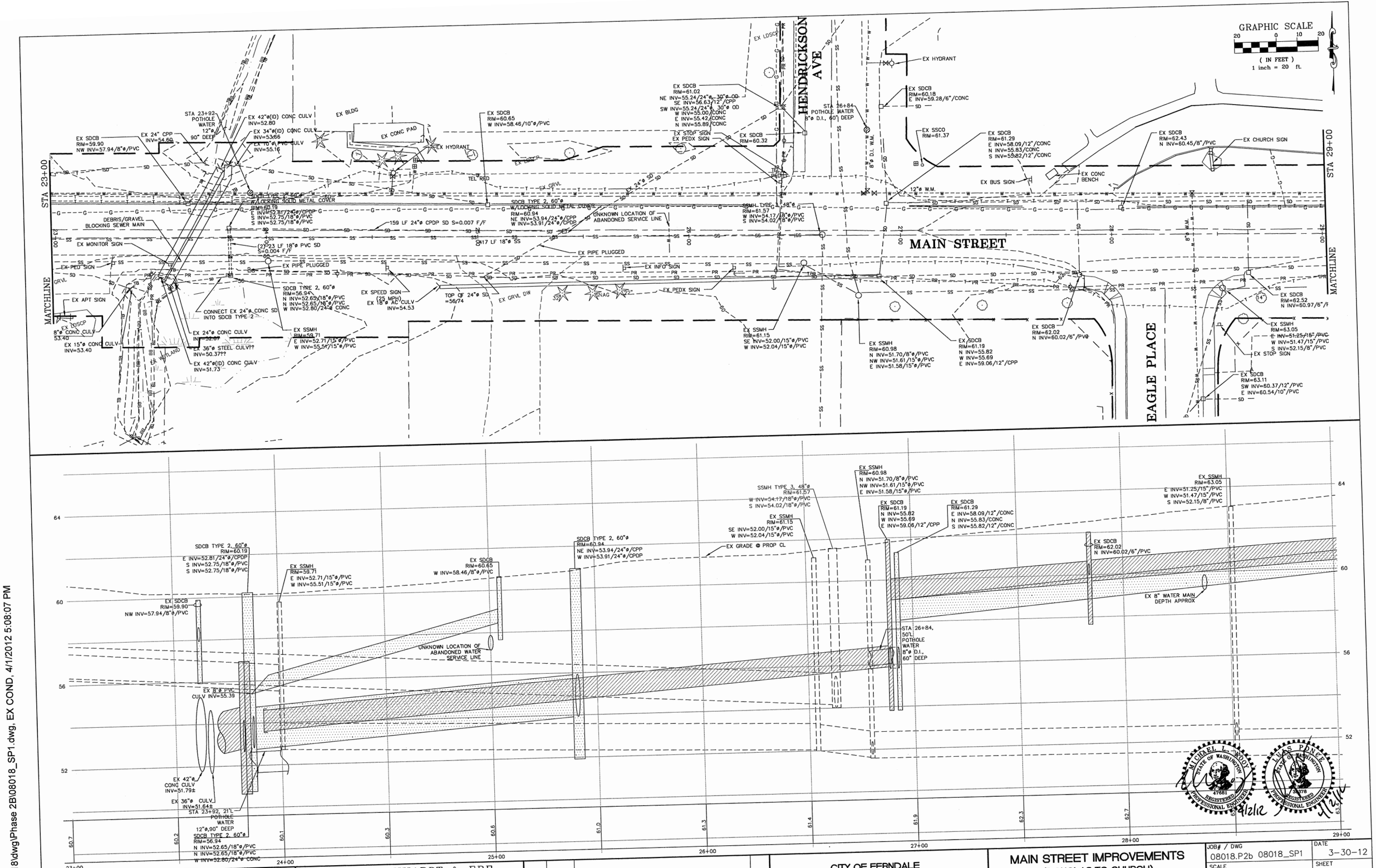

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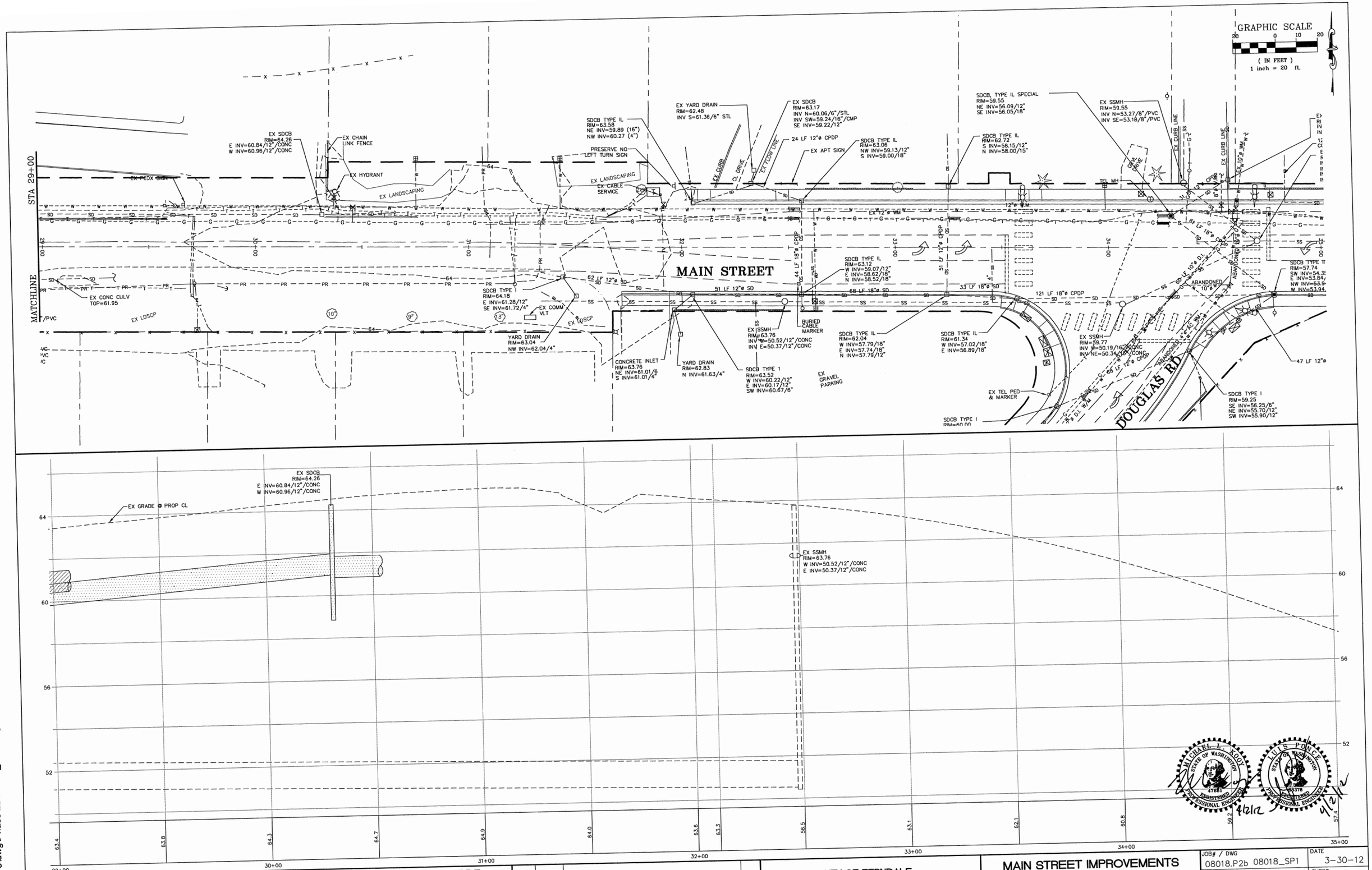

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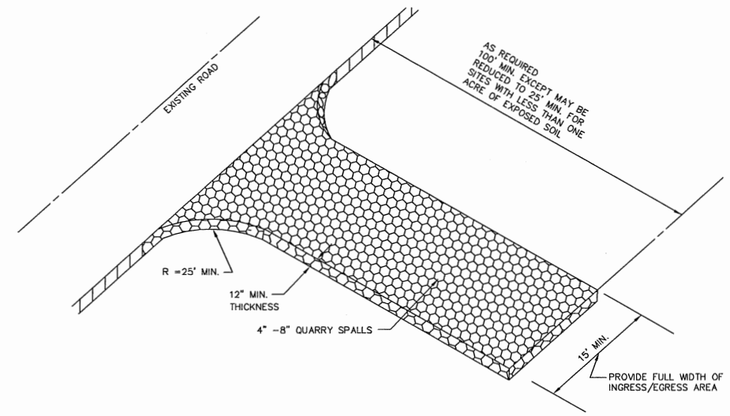
LEGEND

SYMBOL	WASHINGTON STATE DEPT. OF ECOLOGY BEST MANAGEMENT PRACTICES (BMP) REF.: STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, 2005
CE	BMP E2.10 STABILIZED CONSTRUCTION ENTRANCE AND TIRE WASH SEE DETAIL THIS SHEET
FF	BMP E3.10 FILTER FENCE – SEE DETAIL THIS SHEET
IP	BMP E3.30 INLET PROTECTION – PLACE SEDIMENT FILTER AROUND OR OVER CATCH BASINS
WC	CHECK DAMS – GEOTEXTILE ENCASED CHECK DAM PER WSDOT STD PLAN I-50.10-00

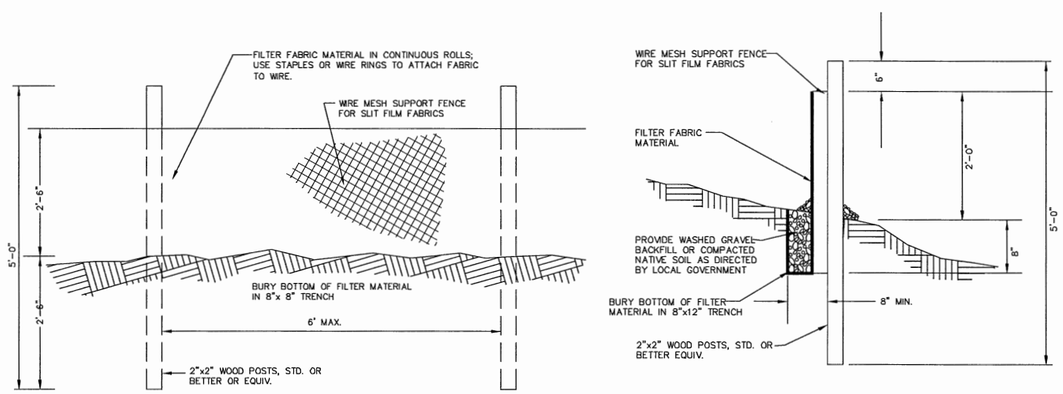
GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
2. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND FERTILIZED FOR EROSION CONTROL. CONTRACTOR SHALL BE RESPONSIBLE FOR SLOPE EROSION UNTIL VEGETATION IS FIRMLY ESTABLISHED.
3. CONTRACTOR SHALL INFORM THE ENGINEER AND OBTAIN APPROVAL FROM THE ENGINEER OF ANY PROPOSED CHANGES IN PLAN PRIOR TO CONSTRUCTION OF THAT CHANGE. CONTRACTOR SHALL KEEP RECORD OF DEVIATIONS AND FORWARD TO THE ENGINEER.
4. CONTRACTOR WILL HAVE A WATER TRUCK AVAILABLE ON SITE AT ALL TIMES. CONTRACTOR WILL WATER SURFACES OFTEN ENOUGH TO ABATE DUST AS APPROVED BY THE ENGINEER. WATERING WILL INCLUDE WEEKENDS AND HOLIDAYS.
5. THE CONTRACTOR WILL CONSTRUCT A CONSTRUCTION ENTRANCE AS SHOWN IN THE CONSTRUCTION ENTRANCE DETAIL ON THIS SHEET AT EACH ENTRANCE FROM A STAGING OR WORK AREA ONTO A PUBLIC ROAD OR NON-STAGING OR NON-WORKING AREA.
6. ALL DISTURBED AREAS SHALL BE HYDROSEEDED. GRASS SEEDING SHALL BE BROADCAST IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE SEDIMENTATION AND EROSION CONTROL MEASURES AS SHOWN.
8. THE CONSTRUCTED EROSION CONTROL AND SEDIMENTATION PLAN SHALL BE APPROVED BY THE ENGINEER PRIOR TO PERFORMING ANY SITE GRADING OR CLEARING.
9. MAINTENANCE AND OPERATION OF THE EROSION CONTROL AND SEDIMENTATION SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE SEDIMENTATION AND EROSION CONTROL MEASURES.
10. ANY VEGETATION NOT IN THE CONSTRUCTION AREA SHALL BE LEFT UNDISTURBED.
11. ALL CLEARING LIMITS SHALL BE VISIBLY MARKED PRIOR TO CLEARING.
12. ALL STORM DRAIN FACILITIES WITHIN THE PROJECT BOUNDARY, OR WHICH ARE IMPACTED BY THE PROJECT ARE TO BE CLEARED OF SEDIMENT AND DEBRIS PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
13. THIS PLAN REPRESENTS THE MINIMUM REQUIREMENTS FOR THIS PROJECT. ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE ENGINEER AS ARE FOUND NECESSARY.
14. THE TEMPORARY EROSION CONTROL SYSTEMS SHALL BE INSTALLED PRIOR TO ALL OTHER SITE CONSTRUCTION.



STABILIZED CONSTRUCTION ENTRANCE

NTS



FILTER FABRIC FENCE DETAIL

NTS

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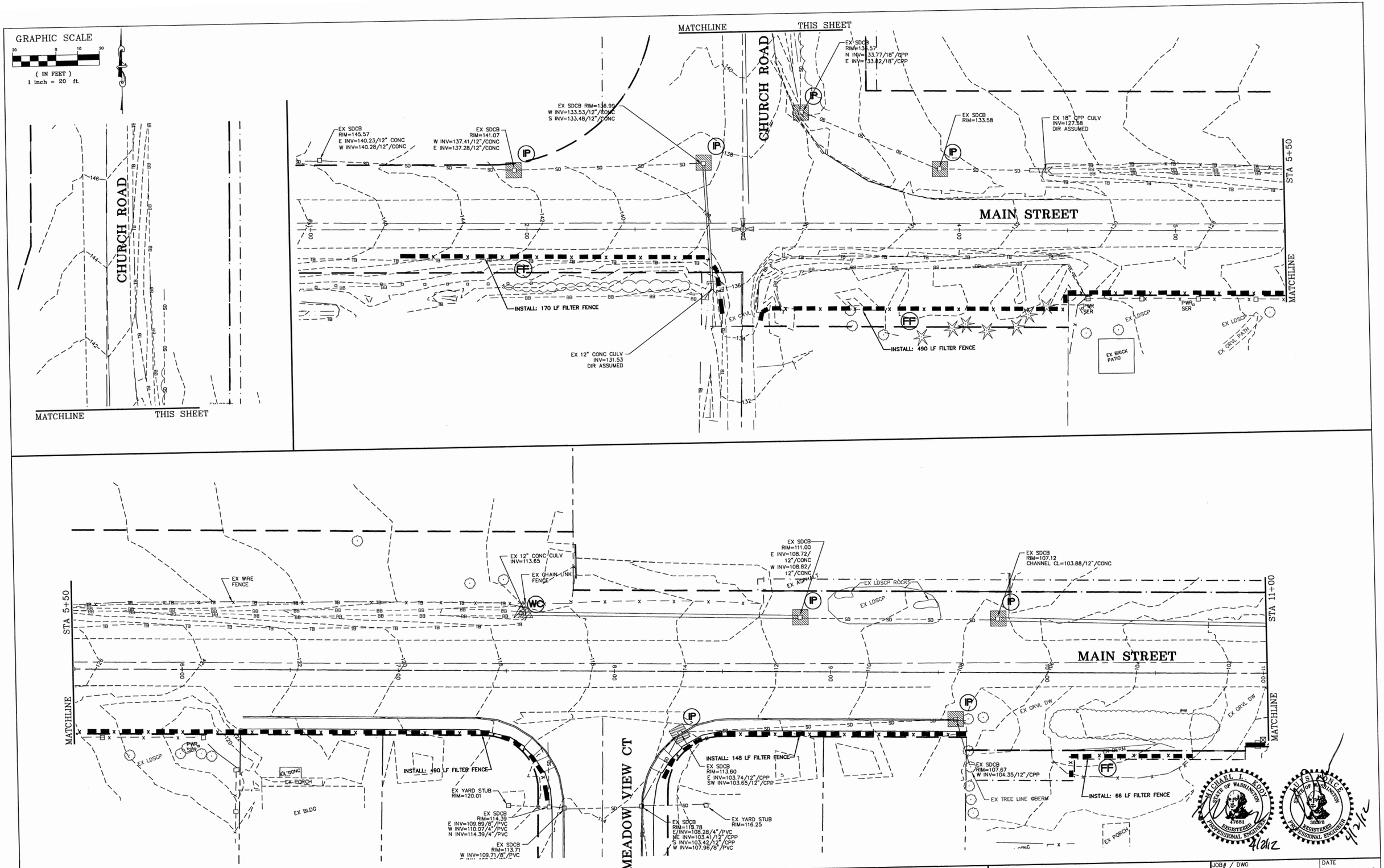

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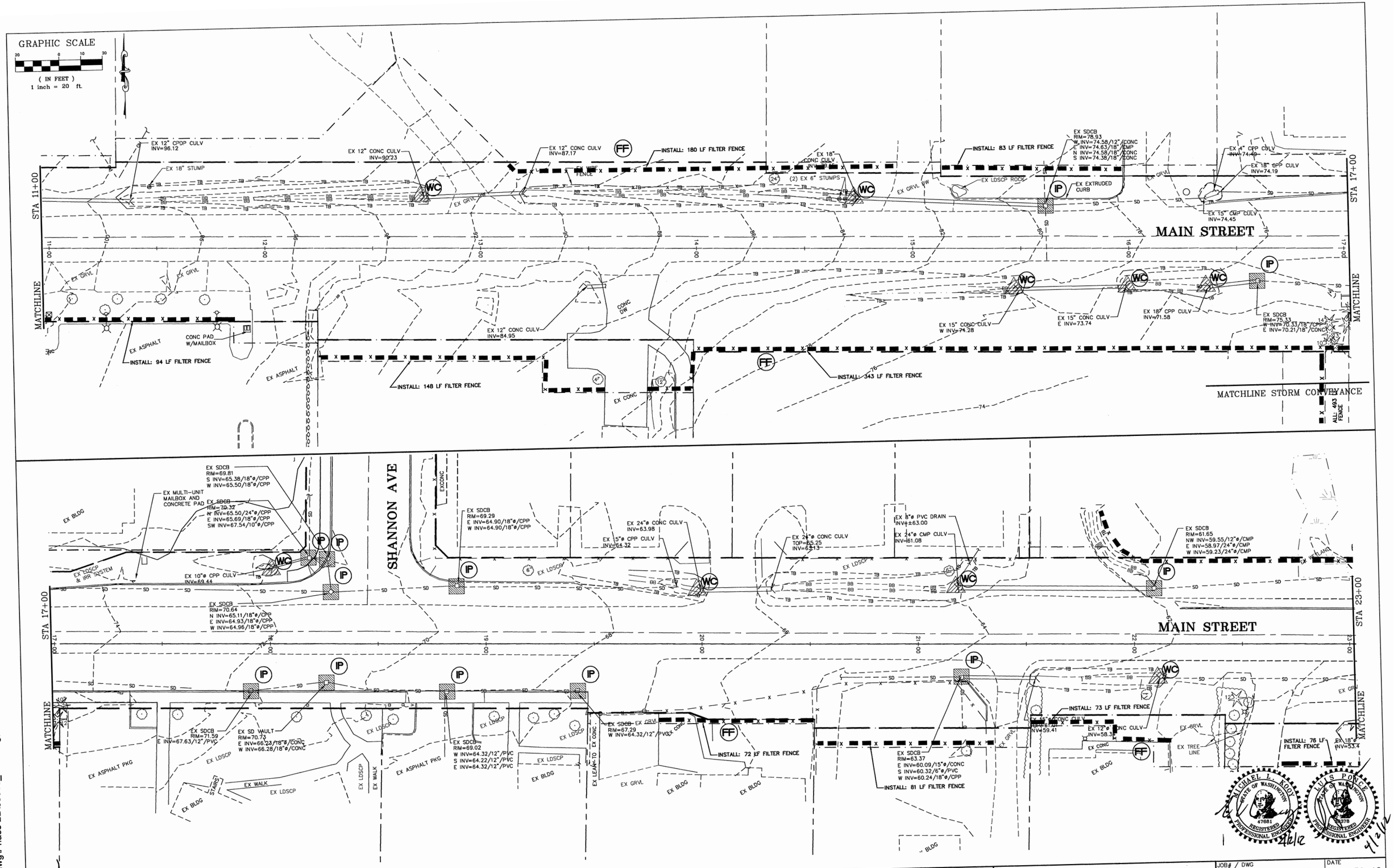

DESIGNED BY	MLK/LP
DRAWN BY	LMC
CHECKED BY	LP

R&E

REICHHARDT & EBE
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CONSULTING ENGINEERS
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Lynden, Washington 98264
Ph (360) 354-3687
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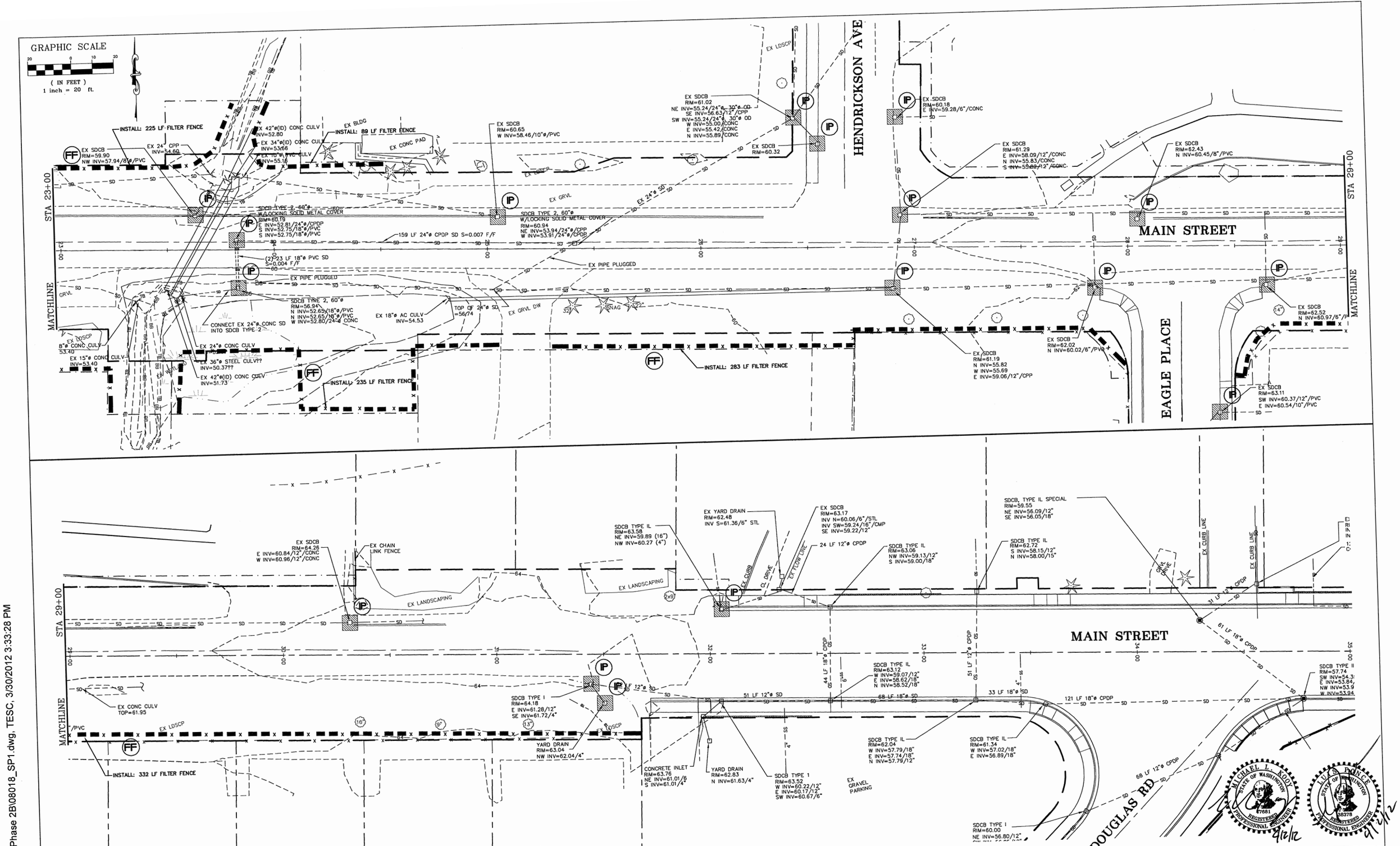
NO.	DATE	REVISION	BY

CITY OF FERNDALE
PO BOX 936
FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
STA 11+00 TO 23+00 TESC PLAN

JOB# / DWG	DATE
08018.P2b 08018_SP1	3-30-12
SCALE H:1"=20' V:n/a	SHEET 12

J:\Projects\08018\dwg\Phase 2B\08018_SP1.dwg, TESC, 3/30/2012 3:33:07 PM



DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 23+00 TO 32+00 TESC PLAN	JOB# / DWG 08018.P2b 08018_SP1 SCALE H:1"=20' V:n/a DATE 3-30-12 SHEET 13

MICHAEL L. KODY STATE OF WASHINGTON 47681 REGISTERED PROFESSIONAL ENGINEER 9/12/12

LUIS PONCE STATE OF WASHINGTON 36378 REGISTERED PROFESSIONAL ENGINEER 9/12/12

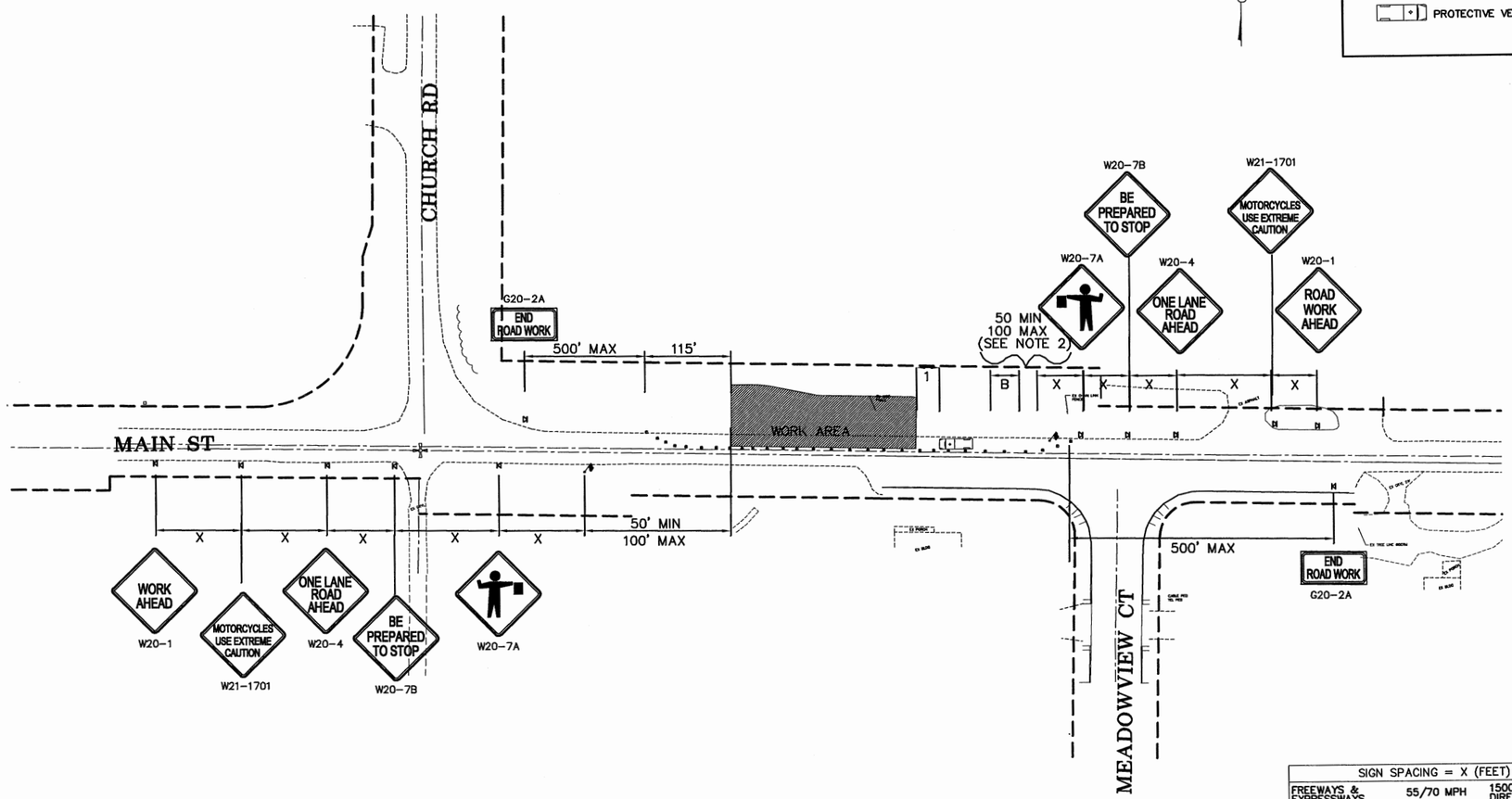
\Projects\08018\dwg\Phase 2B\08018_SP1.dwg, TESC, 3/30/2012 3:33:28 PM

LEGEND

- CONSTRUCTION SIGN
- CHANNELIZATION DEVICES (DRUMS)
- FLAGGER LOCATION
- WORK AREA
- PROTECTIVE VEHICLE–RECOMMENDED

NOTES:
1. ALL UNITS IN FEET UNLESS OTHERWISE SPECIFIED.
2. USE A MINIMUM OF SIX (6) CHANNELIZATION DEVICES IN A TAPER, SEE MUTCD CHARTS ON THIS SHEET.
3. TRAFFIC CONTROL SIMILAR FOR WORKZONES LOCATED AT THE OTHER CORNERS OF THE INTERSECTION.
4. PROTECTIVE VEHICLE REQUIRED FOR STATIONARY WORK ZONES. PROTECTIVE VEHICLE IS OPTIONAL FOR MOBILE WORK ZONES.
5. "MOTORCYCLE USE EXTREME CAUTION" SIGN (W21-1701) SHALL BE INSTALLED THROUGHOUT THE WORKZONE AND AFTER EACH SIGNIFICANT INTERSECTION WHEN THE FOLLOWING ROADWAY CONDITIONS EXISTS DURING CONSTRUCTION:
   - GROOVED PAVEMENT (W8-2001)
   - ABRUPT LANE EDGE (W21-801)
   - LOOSE GRAVEL (W8-7)
   - STEEL PLATES ON ROADWAY

ALL DIAMOND SHAPED SIGNS SHALL BE BLACK ON ORANGE AND 48"x48" IN SIZE. END ROAD WORK SIGNS SHALL BE BLACK ON ORANGE AND 48"x24" IN SIZE. FLAGGER STATION SHALL BE ILLUMINATED DURING THE HOURS OF DARKNESS.



SIGN SPACING = X (FEET)		
FREEWAYS & EXPRESSWAYS	55/70 MPH	1500± (OR AS DIRECTED BY MUTCD)
RURAL ROADS	45/55 MPH	500'±
URBAN ARTERIALS & RURAL ROADS	35/40 MPH	350'±
RURAL ROADS, URBAN STREETS, RESIDENTIAL & BUSINESS DISTRICTS	25/30 MPH	200'±

CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50/70	40	80
35/45	30	60
25/30	20	40

MINIMUM TAPER LENGTH (L) IN FEET										
LANE WIDTH (FEET)	POSTED SPEED LIMIT (MPH)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	265	450	500	550	–	–	–
11	115	165	225	295	495	550	605	660	–	–
12	125	180	245	320	540	600	660	720	780	840

BUFFER DATA										
BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	730

PROTECTIVE VEHICLE WITH TMA ROLL AHEAD DISTANCE		
TYPICAL PROTECTIVE VEHICLE TYPE WITH TMA	TYPICAL PROTECTIVE VEHICLE (WITH TMA) LOADED WEIGHT (LBS.)	STATIONARY OPERATION (FEET)
4 YARD DUMP TRUCK, SERVICE TRUCK, FLAT BED, ETC	MINIMUM WEIGHT 15,000 LBS. MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.	30 MIN.
ROLL AHEAD STOPPING DISTANCE ASSUMES DRY PAVEMENT		

* A PROTECTIVE VEHICLE IS RECOMMENDED REGARDLESS IF TMA IS AVAILABLE. IF NO TMA IS USED, THE PROTECTIVE VEHICLE SHALL BE STRATEGICALLY LOCATED IN THE FIELD TO SHIELD WORKERS AND NO ROLL AHEAD DISTANCE IS SPECIFIED.

MICHAEL L. KODY — STATE OF WASHINGTON — 37961 — REGISTERED PROFESSIONAL ENGINEER — 4/6/12

LIS HOLE — STATE OF WASHINGTON — 39378 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
MAINLINE SINGLE LANE CLOSURE (TYP)

JOB# / DWG: 08018.P2b 08018_SP1
DATE: 3-30-12
SCALE: H:N/A V:N/A
SHEET: 14

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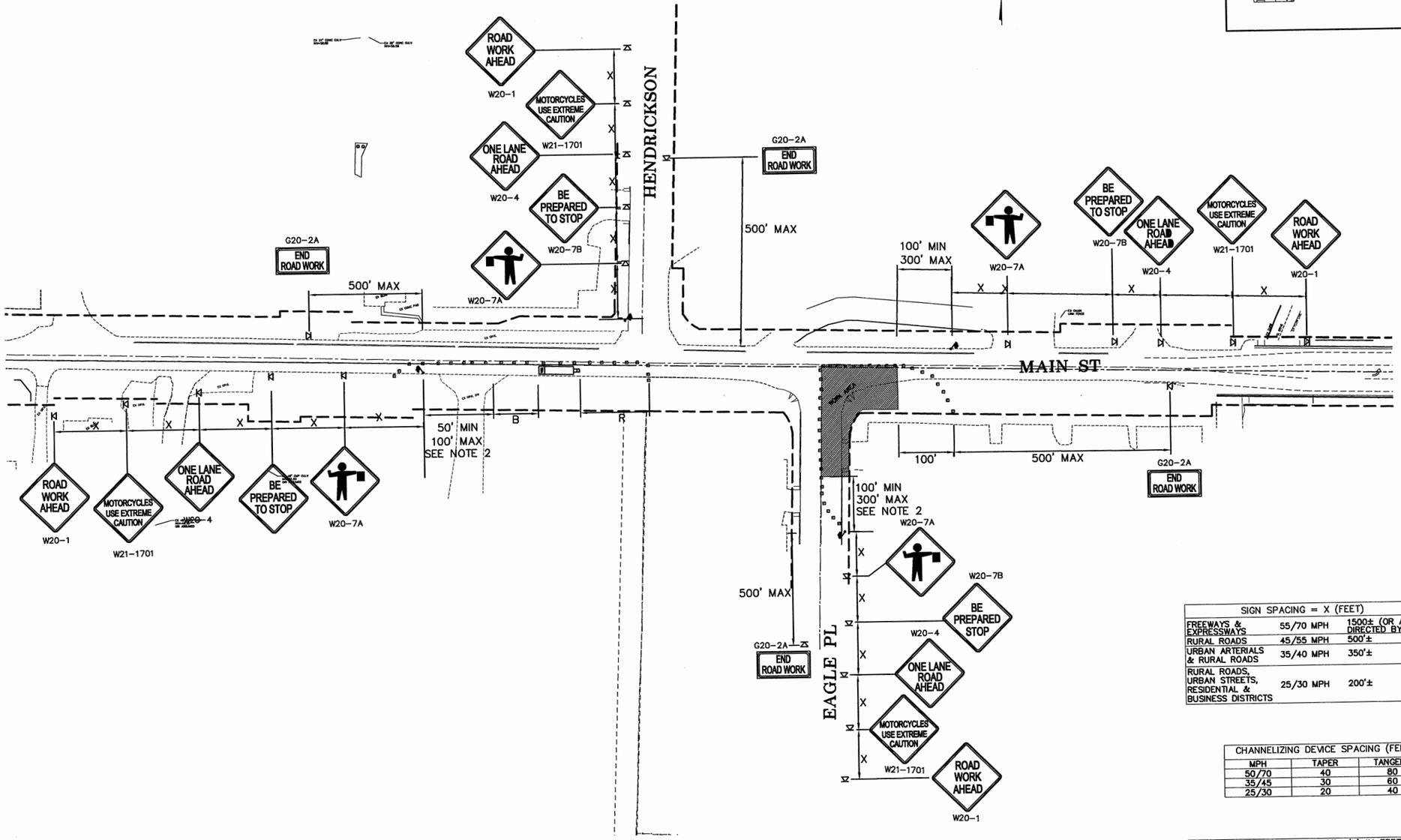

LEGEND

- CONSTRUCTION SIGN
- CHANNELIZATION DEVICES (DRUMS)
- FLAGGER LOCATION
- WORK AREA
- PROTECTIVE VEHICLE–RECOMMENDED

NOTES:
1. ALL UNITS IN FEET UNLESS OTHERWISE SPECIFIED.
2. USE A MINIMUM OF SIX (6) CHANNELIZATION DEVICES IN A TAPER, SEE MUTCD CHARTS ON THIS SHEET.
3. TRAFFIC CONTROL SIMILAR FOR WORKZONES LOCATED AT THE OTHER CORNERS OF THE INTERSECTION.
4. PROTECTIVE VEHICLE REQUIRED FOR STATIONARY WORK ZONES. PROTECTIVE VEHICLE IS OPTIONAL FOR MOBILE WORK ZONES.
5. "MOTORCYCLE USE EXTREME CAUTION" SIGN (W21-1701) SHALL BE INSTALLED THROUGHOUT THE WORKZONE AND AFTER EACH SIGNIFICANT INTERSECTION WHEN THE FOLLOWING ROADWAY CONDITIONS EXISTS DURING CONSTRUCTION:
   - GROOVED PAVEMENT (W8-2001)
   - ABRUPT LANE EDGE (W21-801)
   - LOOSE GRAVEL (W8-7)
   - STEEL PLATES ON ROADWAY

SIGN SPACING = X (FEET)		
FREEWAYS & EXPRESSWAYS	55/70 MPH	1500± (OR AS DIRECTED BY MUTCD)
RURAL ROADS	45/55 MPH	500'±
URBAN ARTERIALS & RURAL ROADS	35/40 MPH	350'±
RURAL ROADS, URBAN STREETS, RESIDENTIAL & BUSINESS DISTRICTS	25/30 MPH	200'±

CHANNELIZING DEVICE SPACING (FEET)		
MPH	TAPER	TANGENT
50/70	40	80
35/45	30	60
25/30	20	40

MINIMUM TAPER LENGTH (L) IN FEET										
LANE WIDTH (FEET)	POSTED SPEED LIMIT (MPH)									
	25	30	35	40	45	50	55	60	65	70
10	105	150	205	265	450	500	550	–	–	–
11	115	165	225	295	495	550	605	660	–	–
12	125	180	245	320	540	600	660	720	780	840

BUFFER DATA										
BUFFER SPACE = B										
SPEED (MPH)	25	30	35	40	45	50	55	60	65	70
LENGTH (feet)	155	200	250	305	360	425	495	570	645	730

PROTECTIVE VEHICLE WITH TMA ROLL AHEAD DISTANCE		
TYPICAL PROTECTIVE VEHICLE TYPE WITH TMA	TYPICAL PROTECTIVE VEHICLE (WITH TMA) LOADED WEIGHT (LBS.)	STATIONARY OPERATION (FEET)
4 YARD DUMP TRUCK, SERVICE TRUCK, FLAT BED, ETC	MINIMUM WEIGHT 15,000 LBS. MAXIMUM WEIGHT SHALL BE IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.	30 MIN.
ROLL AHEAD STOPPING DISTANCE ASSUMES DRY PAVEMENT		

* A PROTECTIVE VEHICLE IS RECOMMENDED REGARDLESS IF TMA IS AVAILABLE. IF NO TMA IS USED, THE PROTECTIVE VEHICLE SHALL BE STRATEGICALLY LOCATED IN THE FIELD TO SHIELD WORKERS AND NO ROLL AHEAD DISTANCE IS SPECIFIED.

ALL DIAMOND SHAPED SIGNS SHALL BE BLACK ON ORANGE AND 48"x48" IN SIZE.
END ROAD WORK SIGNS SHALL BE BLACK ON ORANGE AND 48"x24" IN SIZE.
FLAGGER STATION SHALL BE ILLUMINATED DURING THE HOURS OF DARKNESS.

MICHAEL L. KODY — STATE OF WASHINGTON — 37681 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

LUIS PONCE — STATE OF WASHINGTON — 38378 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E — REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
LANE CLOSURE AT INTERSECTION (TYP)

JOB# / DWG: 08018.P2b 08018_SP1
DATE: 3-30-12
SCALE: H:N/A V:N/A
SHEET: 15

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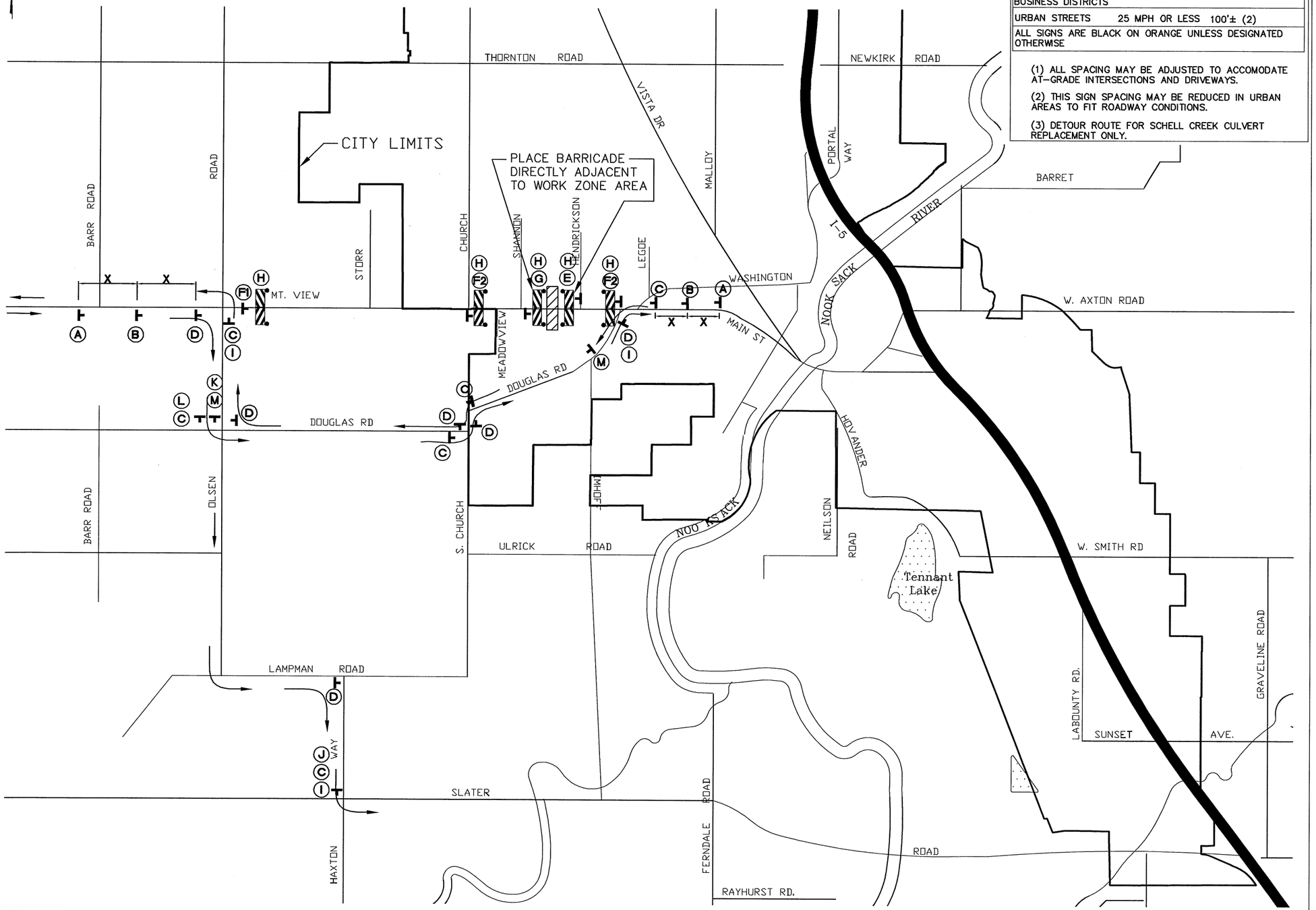
SIGN SPACING = X (1)		
RURAL ROADS	45/55 MPH	500'±
URBAN ARTERIALS & RURAL ROADS	35/40 MPH	350'±
RURAL ROADS, URBAN ARTERIALS, RESIDENTIAL & BUSINESS DISTRICTS	25/30 MPH	200'± (2)
URBAN STREETS	25 MPH OR LESS	100'± (2)
ALL SIGNS ARE BLACK ON ORANGE UNLESS DESIGNATED OTHERWISE		

(1) ALL SPACING MAY BE ADJUSTED TO ACCOMODATE AT-GRADE INTERSECTIONS AND DRIVEWAYS.

(2) THIS SIGN SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

(3) DETOUR ROUTE FOR SCHELL CREEK CULVERT REPLACEMENT ONLY.



LEGEND

	= DIRECTION OF TRAFFIC	
	= SIGN (SHOWN FACING LEFT)	
	= PROPOSED WORK AREA	
A	ROAD CLOSED AHEAD	W 20-3
B	DETOUR AHEAD	W20-2
C	DETOUR	M4-10L
D	DETOUR	M4-10R
E	ROAD CLOSED	R11-2
F1	ROAD CLOSED 1 1/2 MILES AHEAD LOCAL TRAFFIC ONLY	R 11-3
F2	ROAD CLOSED 1/2 MILES AHEAD LOCAL TRAFFIC ONLY	R 11-3
G	ROAD CLOSED TO THRU TRAFFIC	R 11-4
H		TYPE III R AND TYPE III L, BARRICADE WITH 2 TYPE A FLASHING WARNING LIGHTS
I	END DETOUR	M4-8A
J	TO CITY OF FERNDALE	R14-1 (MOD) SPECIAL CLASS A CONSTRUCTION SIGN
K	TRUCK ROUTE	R14-1 (MOD) LEGEND-BLACK BACKGROUND-ORANGE
L	PASSENGER CAR	R14-1 (MOD) LEGEND-BLACK BACKGROUND-ORANGE
M	DETOUR	M4-9 (MOD)

MICHAEL L. KOOY — STATE OF WASHINGTON — 47681 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

LAWRENCE A. EBE — STATE OF WASHINGTON — 18538 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

DESIGNED BY MLK/LP	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) TRUCK AND PASSENGER VEHICLE DETOUR	JOB# / DWG 08018.P2b TC
DRAWN BY LMC	PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407			SCALE H: n/a V: n/a
CHECKED BY LP	NO. DATE REVISION BY			DATE 3-30-12 SHEET 16

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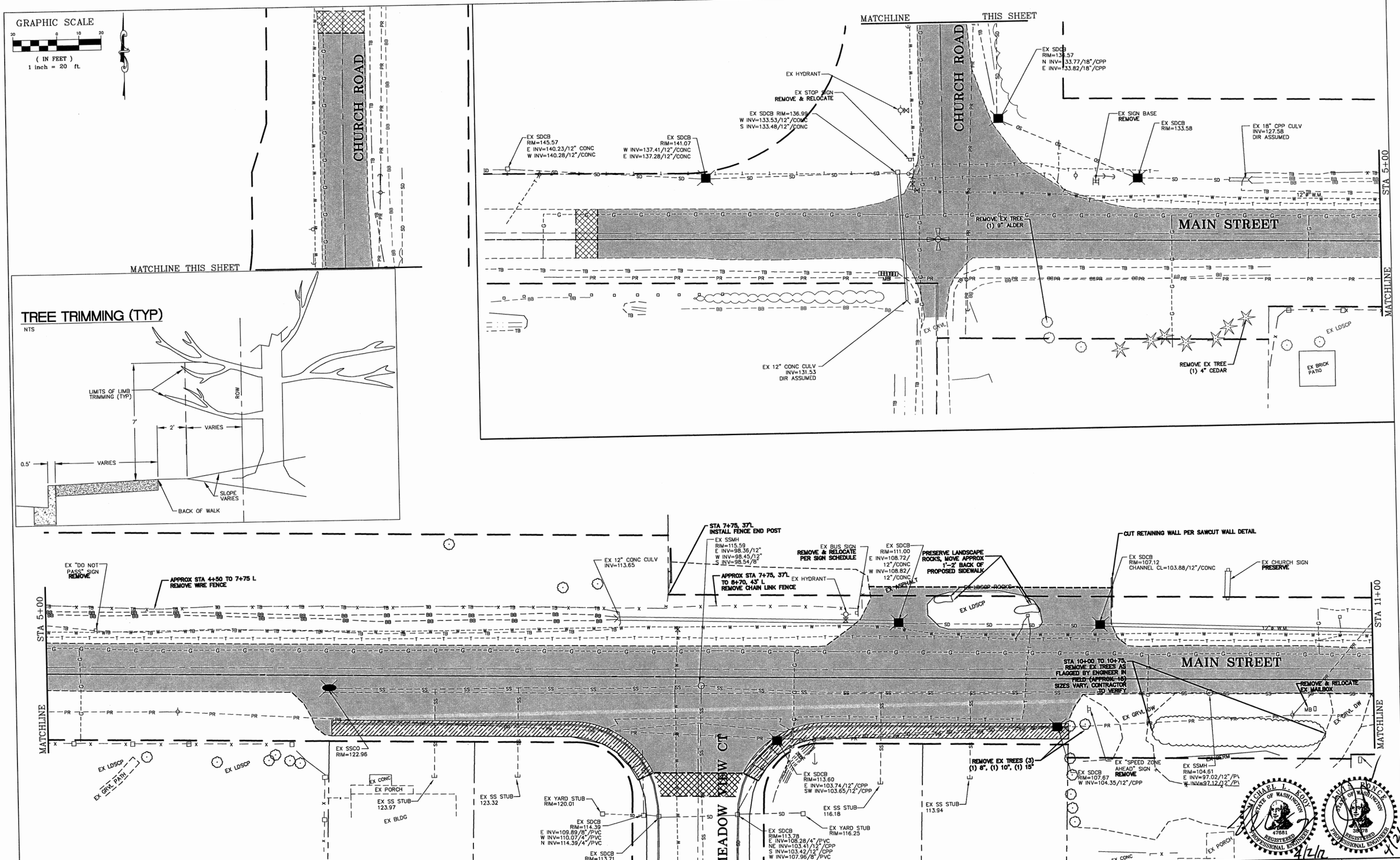

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 1+00 TO 11+00 DEMOLITION PLAN

JOB# / DWG	DATE
08018.P2b 08018_SP1	3-30-12
SCALE H:1"=20' V:n/a	SHEET 17

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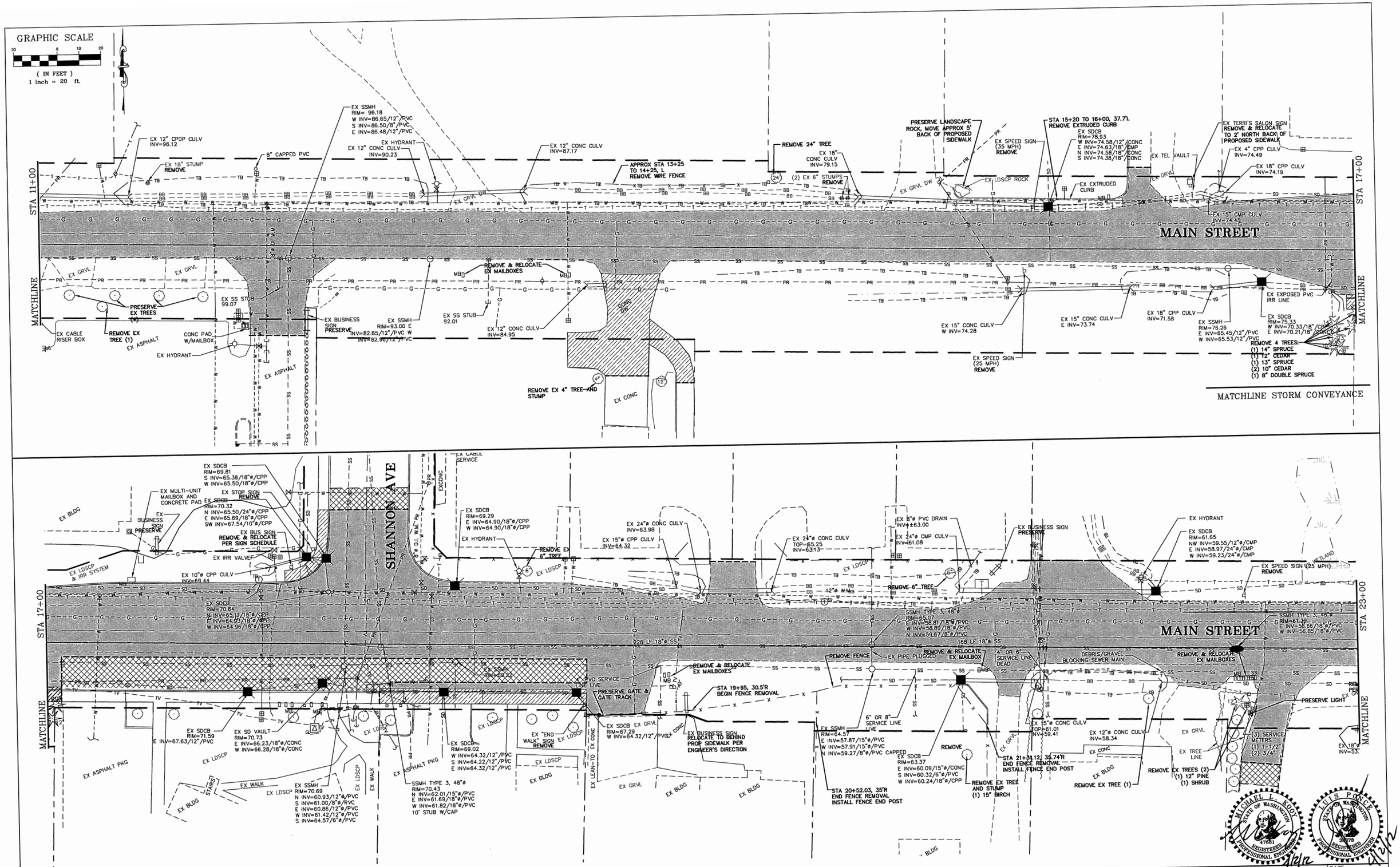

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. DATE REVISION BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 11+00 TO 23+00 DEMOLITION PLAN	JOB# / DWG 08018.P2b 08018_SP1 SCALE H:1"=20' V:n/a DATE 3-30-12 SHEET 18

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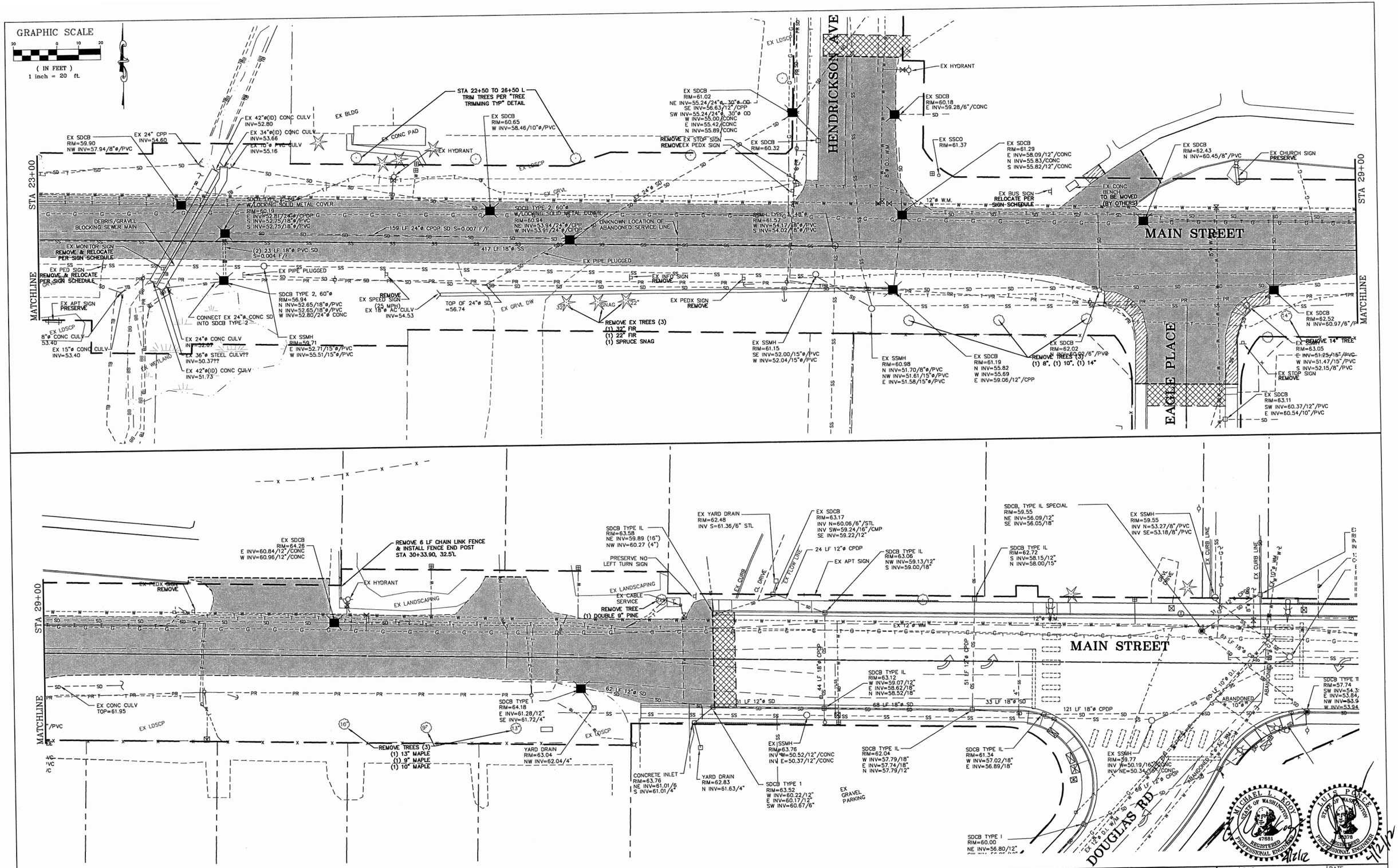

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
STA 23+00 TO 32+00 DEMOLITION PLAN

JOB# / DWG: 08018.P2b 08018_SP1
SCALE: H:1"=20' V:n/a
DATE: 3-30-12
SHEET: 19

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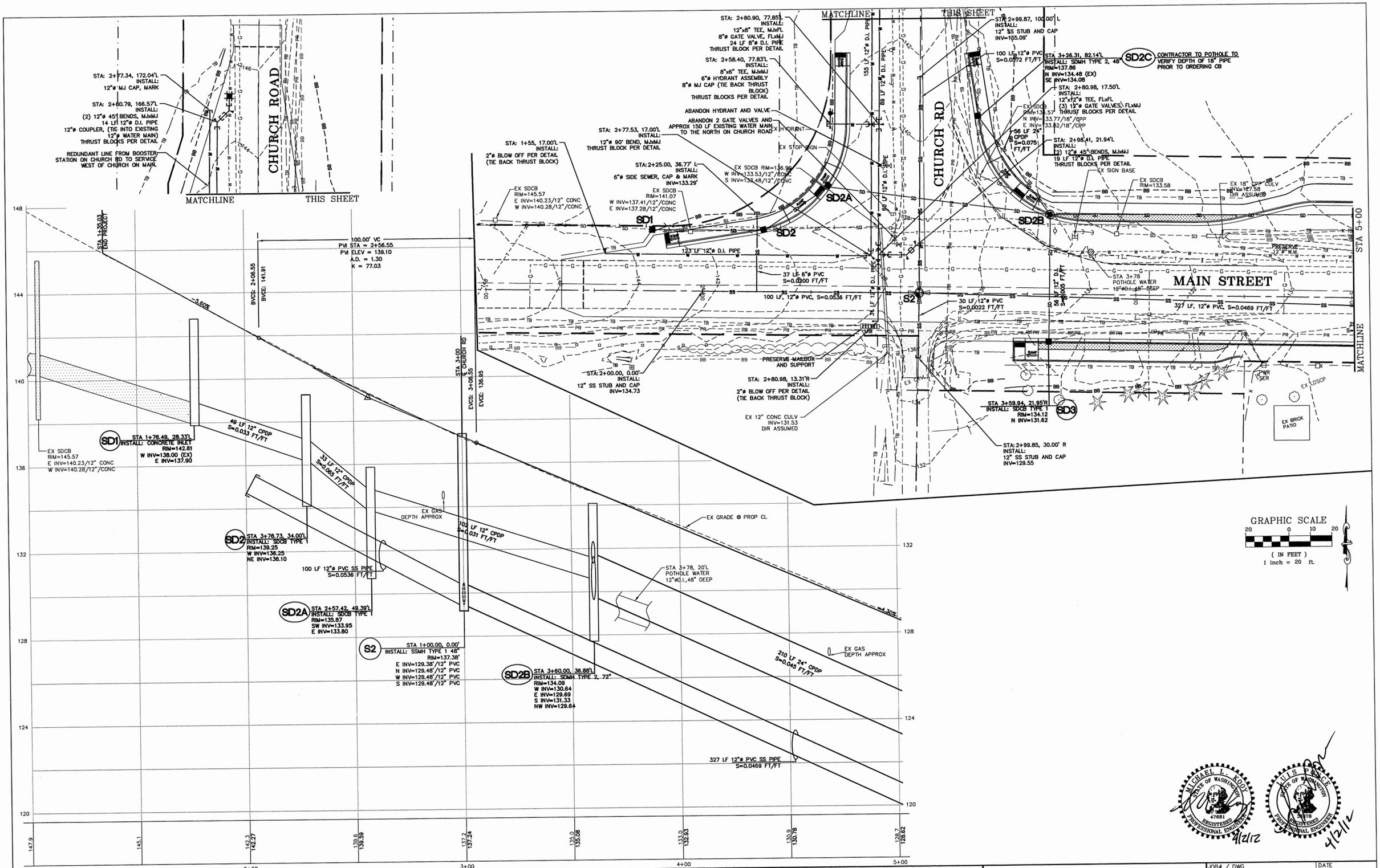

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 1+00 TO 5+00 PLAN AND PROFILE	JOB# / DWG 08018.P2b 08018_SP1 SCALE H: 1"=20' V: 1"=2' DATE 3-30-12 SHEET 20

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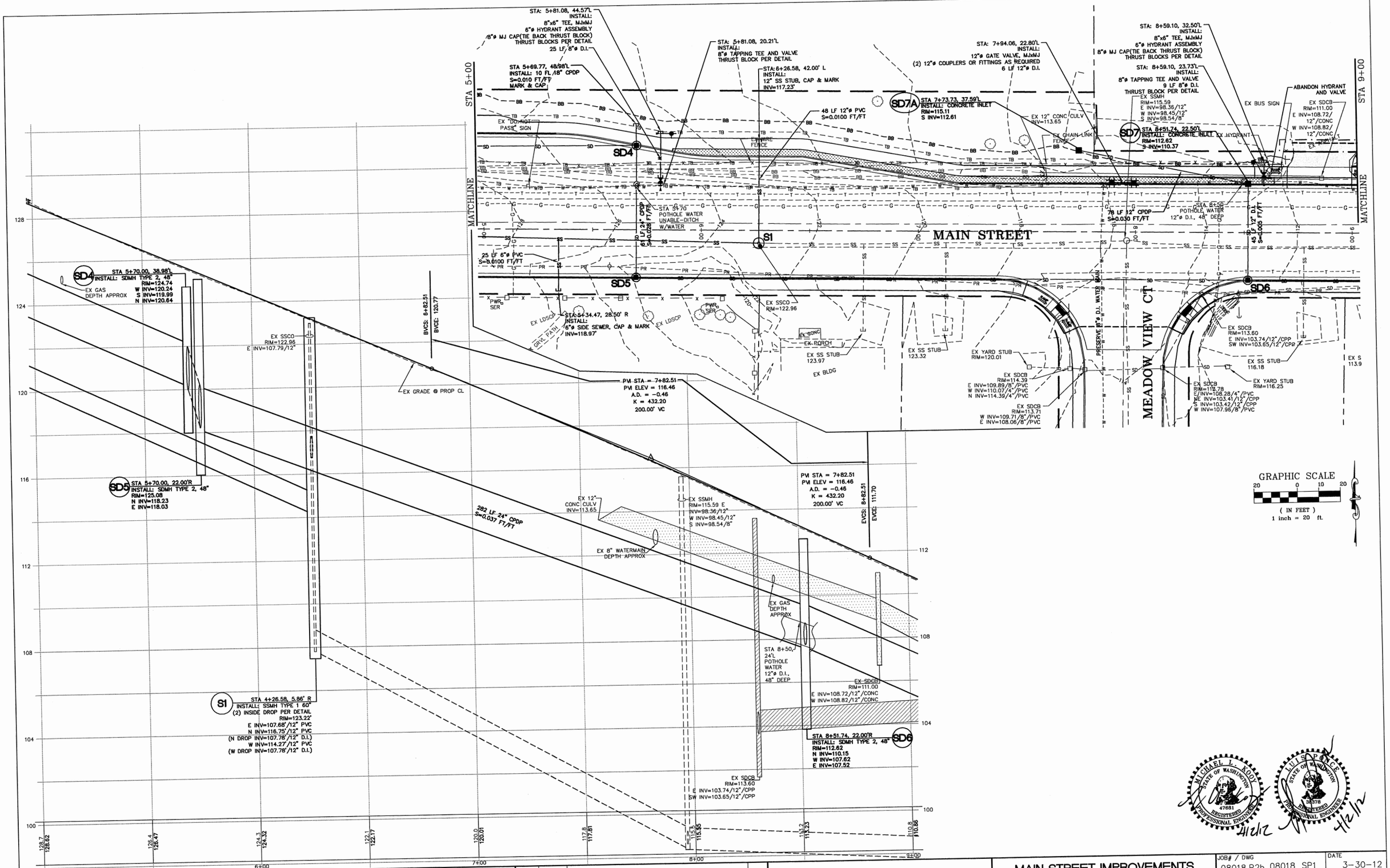

DESIGNED BY MLK/LP	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 5+00 TO 9+00 PLAN AND PROFILE	JOB# / DWG 08018.P2b 08018_SP1
DRAWN BY LMC	PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407			DATE 3-30-12
CHECKED BY LP	NO. DATE REVISION BY			SCALE H:1"=20' V:1"=2'
				SHEET 21

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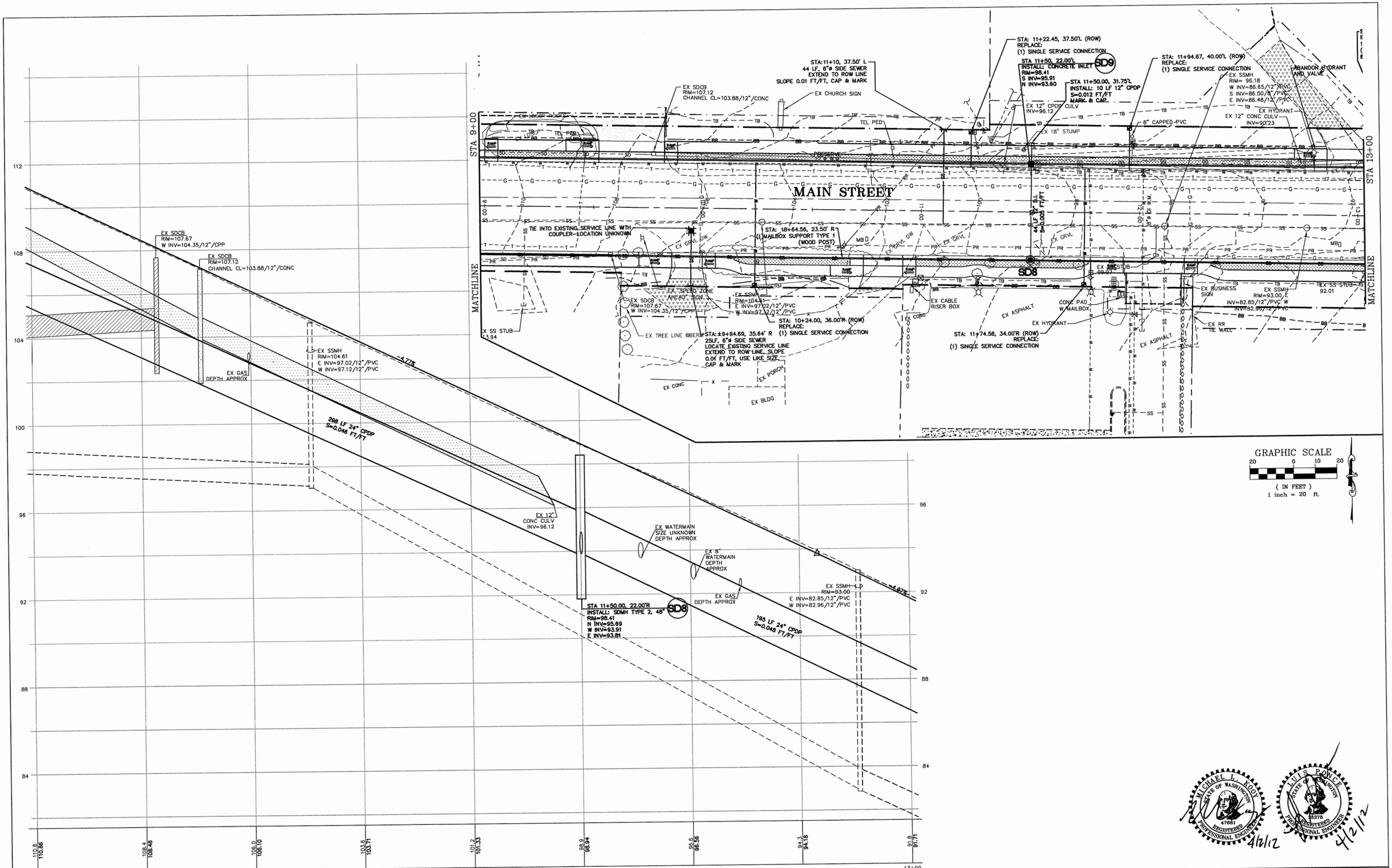

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 9+00 TO 13+00 PLAN AND PROFILE	JOB# / DWG 08018.P2b 08018_SP1 SCALE H:1"=20' V:1"=2'	DATE 3-30-12 SHEET 22

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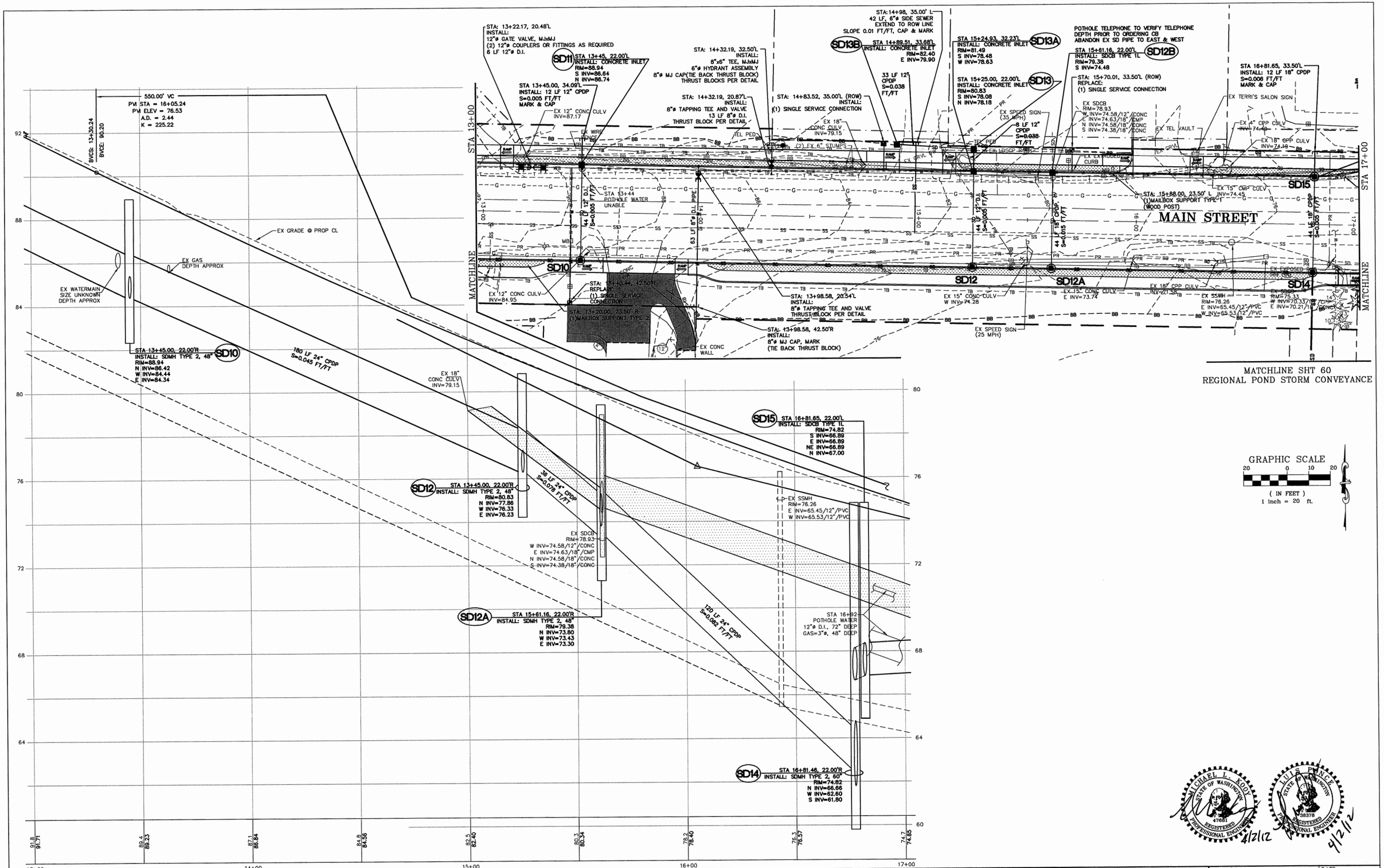

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 13+00 TO 17+00 PLAN AND PROFILE	JOB# / DWG 08018.P2b 08018_SP1 SCALE H: 1"=20' V: 1"=2' DATE 3-30-12 SHEET 23

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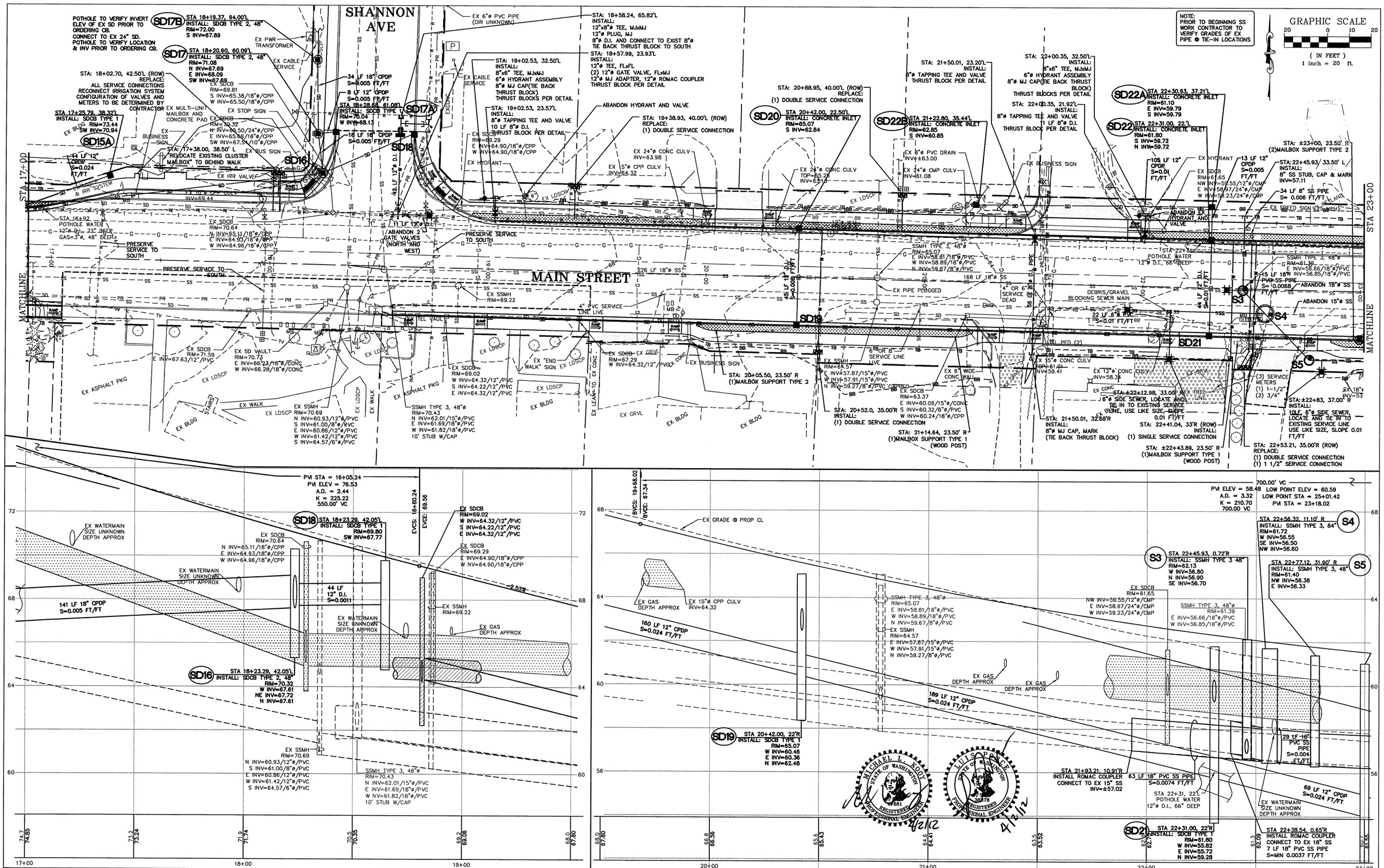

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. DATE REVISION BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 17+00 TO 23+00 PLAN AND PROFILE

JOB# / DWG	DATE
08018.P2b 08018_SP1	3-30-12
SCALE H:1"=20' V:1"=2'	SHEET 24

NOTE:
PRIOR TO BEGINNING SS WORK CONTRACTOR TO VERIFY GRADES OF EX PIPE @ TIE-IN LOCATIONS

GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

MAIN STREET

HENDRICKSON AVE

EAGLE PL

MATCHLINE

STA 23+00

STA 29+00

STA 24+15.00, 22.00'L
INSTALL: CONCRETE INLET
RIM=60.24
NW INV=57.15

SD25A

STA: 24+33.57, 20.86'L
INSTALL:
12"ø 45° BEND, MJxMJ
5 LF 12"ø D.I.
12"ø COUPLER CONNECT TO EXISTING THRUST BLOCK PER DETAIL

STA: 24+56.92, 34.50'L
INSTALL:
6"ø HYDRANT ASSEMBLY
THRUST BLOCK PER DETAIL

STA: 24+56.92, 21.25'L
INSTALL:
6"ø TAPPING TEE AND VALVE
12 LF 6"ø D.I.
THRUST BLOCK PER DETAIL

STA: 23+27.51, 21.20'L
INSTALL:
12"ø GATE VALVE, FLxMJ
12"ø 45° BEND, FLxMJ
5 LF 12"ø D.I.
12"ø COUPLER CONNECT TO EXISTING THRUST BLOCK PER DETAIL

STA: 23+48.21, 0.5'L
INSTALL:
12"ø 45° BEND, MJxMJ
INV=58.00
THRUST BLOCK PER DETAIL

STA 23+92
POTHOLE WATER
12"ø
90" DEEP

12 LF 12" PVC
S=0.01 FT/FT

EX SDCB
RIM=59.90
NW INV=57.94/8"ø/PVC

EX 24" CPP
INV=54.60

EX 42"ø(ID) CONC CULV
INV=52.80

EX 34"ø(ID) CONC CULV
INV=53.66

EX 10"ø PVC CULV
INV=55.16

EX BLDG

EX CONC PAD

ABANDON HYDRANT AND VALVE

EX HYDRANT

EX SDCB
RIM=60.65
W INV=58.46/10"ø/PVC

STA: 24+69.94, 36.00'L (ROW)
REPLACE:
(1) 1 1/2" SERVICE CONNECTION, AND PRV VAULT

SD25

SD26

SD23

SD24

S7

S6

TEL RED

EX CATV

SDCB TYPE 2, 60"ø
W/LOCKING SOLID METAL COVER
RIM=60.79
E INV=52.81/24"ø/CPDP
S INV=52.75/18"ø/PVC
W INV=52.75/18"ø/PVC

DEBRIS/GRAVEL BLOCKING SEWER MAIN

56 LF 36" PVC
S=0.0074 FT/FT

65 LF 12" D.I. PIPE

159 LF 24"ø CPDP SD S=0.007 F/F

(6) 23 LF 18"ø PVC SD
S=0.004 F/F

PRESERVE 18"ø SS

EX MONITOR SIGN

EX PED SIGN

EX PIPE PLUGGED

ABANDON 15"ø SS

SDCB TYPE 2, 60"ø
RIM=56.04
N INV=52.65/18"ø/PVC
N INV=52.65/18"ø/PVC
W INV=52.80/24"ø CONC

EX SPEED SIGN
(25 MPH)

EX 10"ø CONC CULV
INV=54.53

TOP OF 24"ø SD
56.24

EX ART SIGN

CONNECT EX 24"ø CONC
INTO SDCB TYPE 2

EX DSCR

18"ø CONC CULV
INV=53.40

EX 15"ø CONC CULV
INV=53.40

STA 23+38.00, 42.71'R
INV=52.86

EX WETLAND

EX SSMH
RIM=59.71
E INV=52.71/15"ø/PVC
W INV=55.57/15"ø/PVC
ABANDON MANHOLE

EX 24"ø CONC CULV
INV=52.89

EX 36"ø STEEL CULV??
INV=50.37??

EX 42"ø(ID) CONC CULV
INV=51.73

STA 23+54.24, 44.40'R
INV=51.86

STA: 24+13.21, 0.5'L
INSTALL:
12"ø 45° BEND, MJxMJ
INV=58.00
THRUST BLOCK PER DETAIL

STA 25+01.42, 22'R
INSTALL: SDCB TYP 1
RIM=59.75
E INV=57.50

SD28

STA: 25+21.77, 20.37'L
INSTALL:
8"ø TAPPING TEE AND VALVE
THRUST BLOCK PER DETAIL

STA: 25+20.86, 40.00'R
INSTALL:
8"ø MJ CAP, MARK
(TIE BACK THRUST BLOCK)

STA 25+63.61, 22'R
INSTALL: SDCB TYP 1
RIM=60.15
N INV=56.88
W INV=56.88

SD27

EX SSMH
RIM=61.15
SE INV=52.00/15"ø/PVC
W INV=52.04/15"ø/PVC

ABANDON MANHOLE

STA: 26+78, 28.70' R
CAP AND PLUG 15"ø SS STUB TO NW.

SD30

STA 26+55.32, 77.09'L
INSTALL: SDCB TYPE 2, 60"ø
RIM=60.50
SW INV=55.37
W INV=55.52

11 LF 18" CPDP
S=0.03 FT/FT

POTHOLE TO VERIFY INVERT ELEVATION OF EXISTING SD PRIOR TO ORDERING CB

SD31

STA 26+44.01, 77.48'L
INSTALL: CONCRETE INLET
RIM=61.31
E INV=55.88

EX SDCB
RIM=61.02
NE INV=55.24/24"ø, 30"ø OD
SE INV=56.63/12"/CPP
SW INV=55.24/24"ø, 30"ø OD
W INV=55.00/CONC
E INV=55.42/CONC
N INV=55.89/CONC

37 LF
36" CPDP
S=0.013 FT/FT

EX STOP SIGN
EX PEDX SIGN

EX SDCB
RIM=

SD29

STA 26+84
POTHOLE WATER
8"ø D.I., 60" DEEP

8"ø D.I. W.M.

EX SDCB
RIM=60.83
NE INV=56.27/12"/CONC
SW INV=56.12/12" CONC

ABANDON HYDRANT AND VALVE

EX HYDRANT

STA: 26+84.18, 58.67'L
INSTALL:
6"ø TAPPING TEE AND VALVE
15 LF 6"ø D.I.
THRUST BLOCK PER DETAIL

EX SDCB
RIM=60.18
E INV=59.28/6"/CONC

STA: 26+98.87, 59.05'L
INSTALL:
6"ø HYDRANT ASSEMBLY
THRUST BLOCK PER DETAIL

STA: 27+13.79, 34.00'L (ROW)
REPLACE:
(1) SINGLE SERVICE CONNECTION

EX SSCO
RIM=61.37

EX SDCB
RIM=61.29
E INV=58.09/12"/CONC
N INV=55.83/CONC
S INV=55.82/12"/CONC

SD32

SD33

SD34

EX BUS SIGN

EX CONC BENCH

12"ø WM

UNKNOWN LOCATION OF ABANDONED SERVICE LINE

SDCB TYPE 2, 60"ø
W/LOCKING SOLID METAL COVER
RIM=60.94
NE INV=53.94/24"ø/CPP
W INV=53.91/24"ø/CPDP

SSMH TYPE 3, 48"ø
RIM=61.57
W INV=54.17/18"ø/PVC
S INV=54.02/18"ø/PVC

EX SDCB
RIM=62.43
N INV=60.45/8"/PVC

EX CHURCH SIGN

44 LF 12" D.I.
S=0.005 FT/FT

PRESERVE 8" W.M.

SD35

SD36

EX SDCB
RIM=62.02
N INV=60.97/6"/PVC

EX SSMH
RIM=63.05
E INV=51.25/15"/PVC
W INV=51.47/15"/PVC
S INV=52.15/8"/PVC

EX STOP SIGN

EX SDCB
RIM=63.11
SW INV=60.37/12"/PVC
E INV=60.54/10"/PVC

EX SSMH
RIM=60.98
N INV=51.70/8"ø/PVC
NW INV=51.61/15"ø/PVC
E INV=51.58/15"ø/PVC

EX SDCB
RIM=61.19
N INV=55.82
W INV=55.69
E INV=59.06/12"/CPP

EX SDCB
RIM=61.29
E INV=58.09/12"/CONC
N INV=55.83/CONC
S INV=55.82/12"/CONC

LOW POINT ELEV = 60.59
LOW POINT STA = 25+01.42
PVI STA = 23+18.02
PVI ELEV = 58.48
A.D. = 3.32
K = 210.70
700.00 VC

EVCS: 26+68.02
EVCE: 61.25

STA 23+97.29, 31.90' R
INSTALL: SSMH TYPE 3, 48"
RIM=61.30
W INV=55.85
NE INV=55.80

S6

STA 23+00.00, 22'R
INSTALL: SDCB TYPE 2, 48"
RIM=61.02
W INV=54.06
E INV=53.91

SD23

SDCB TYPE 2, 60"ø
RIM=60.19
E INV=52.81/24"ø/CPDP
S INV=52.75/18"ø/PVC
S INV=52.75/18"ø/PVC

STA 24+28.98, 0.21' R
INSTALL: SSMH TYPE 3, 48"
RIM=60.70
E INV=55.56
SW INV=55.61

S7

EX SSMH
RIM=59.71
E INV=52.71/15"ø/PVC
W INV=55.51/15"ø/PVC

EX SDCB
RIM=60.65
W INV=58.46/8"ø/PVC

SDCB TYPE 2, 60"ø
RIM=60.94
NE INV=53.94/24"ø/CPP
W INV=53.91/24"ø/CPDP

EX GRADE @ PROP CL

6.79%

EX SDCB
RIM=59.90
NW INV=57.94/8"ø/PVC

28 LF
12" D.I.
S=0.0054 FT/FT

50 LF 12" CPDP
S=0.005 FT/FT

EX SDCB
RIM=62.02
N INV=60.02/6"/PVC

97 LF 12" D.I.
S=0.005 FT/FT

EX 8" WATER MAIN DEPTH APPROX

86 LF 36" CPDP
S=0.0074 FT/FT

UNKNOWN LOCATION OF ABANDONED WATER SERVICE LINE

155 LF 36" CPDP
S=0.0077 FT/FT

45 LF 18" PVC SS PIPE
S=0.004 FT/FT

45 LF
12" D.I.
S=0.0056 FT/FT

STA 26+84
50'L
POTHOLE WATER
8"ø D.I.,
60" DEEP

STA 27+10.90, 27.51'L
INSTALL: SDCB TYPE 1
RIM=60.68
NW INV=58.78
E INV=58.93

SD33

STA 27+63.00, 22'R
INSTALL: SDCB TYPE 1
RIM=61.45
N INV=59.55
E INV=59.70

SD35

STA 28+83.01, 22'R
INSTALL: SDCB TYPE 1L
RIM=61.49
W INV=60.17
E INV=60.17

SD36

120 LF 18" D.I. SS PIPE
S=0.004 FT/FT
(20' LENGTHS W/ RESTRAINED JOINTS, INSULLATION, & HANGERS, PER "SANITARY SEWER PIPE SUPPORT" DETAIL

EX 8"ø PVC CULV INV=55.39

STA 24+36.14, 0.18'R
INSTALL: ROMAC COUPLER
CONNECT TO EX 18" SS
2 LF 18" PVC SS PIPE
S=MIN 0.006 FT/FT
INV=±55.51

43 LF 12" CPDP
S=0.024 FT/FT

53 LF 36" CPDP
S=0.007 FT/FT

STA 23+38.00, 42.71'R
INV=52.86

STA 23+54.24, 44.40'R
INV=51.86

EX 42"ø CONC CULV
INV=51.79±

EX 36"ø CULV
INV=51.64±

STA 23+92, 21'L
POTHOLE WATER
12"ø,90" DEEP

STA 24+08.18, 31.90'L
INSTALL: SDCB TYPE 2, 60"
RIM=60.89
E INV=52.80
S INV=52.65
SE INV=57.03

SD25

STA 23+46.35, 49'R
INSTALL: SDCB TYPE 2, 60"
RIM=60.34
SW INV=52.24
N INV=52.24

SD24

SDCB TYPE 2, 60"ø
RIM=56.94
N INV=52.65/18"ø/PVC
N INV=52.65/18"ø/PVC
W INV=52.80/24"ø CONC

STA 25+63.61, 32'L
INSTALL: SDCB TYPE 2, 60"
RIM=59.58
E INV=54.10
W INV=54.00
S INV=56.61

SD26

STA 26+48.88, 40.48'L
INSTALL: SDCB TYPE 2, 72"
RIM=60.26
N INV=54.89
W INV=54.74
NE INV=58.02

SD29

STA 26+92.37, 52.25'L
INSTALL: SDCB TYPE 1
RIM=60.32
SW INV=58.25
SE INV=58.63

SD32

STA 27+63.00, 22'L
INSTALL: SDCB TYPE 1
RIM=61.47
W INV=59.18
S INV=59.33

SD34

60.7 61.55 | 60.2 61.19 | 60.1 60.83 | 60.3 60.65 | 60.6 60.59 | 61.0 60.65 | 61.3 60.82 | 61.4 61.11 | 61.9 61.50 | 62.3 61.90 | 62.7 62.29 | 63.1 62.69 | 63.4 63.08

23+00 24+00 25+00 26+00 27+00 28+00 29+00

MICHAEL L. KOOY
STATE OF WASHINGTON
47681
REGISTERED
PROFESSIONAL ENGINEER
4/2/12

LUIS POLICE
STATE OF WASHINGTON
38778
REGISTERED
PROFESSIONAL ENGINEER
4/2/12

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. DATE REVISION BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 23+00 TO 29+00 PLAN AND PROFILE	JOB# / DWG 08018.P2b 08018_SP1 SCALE H:1"=20' V:1"=2' DATE 3-30-12 SHEET 25

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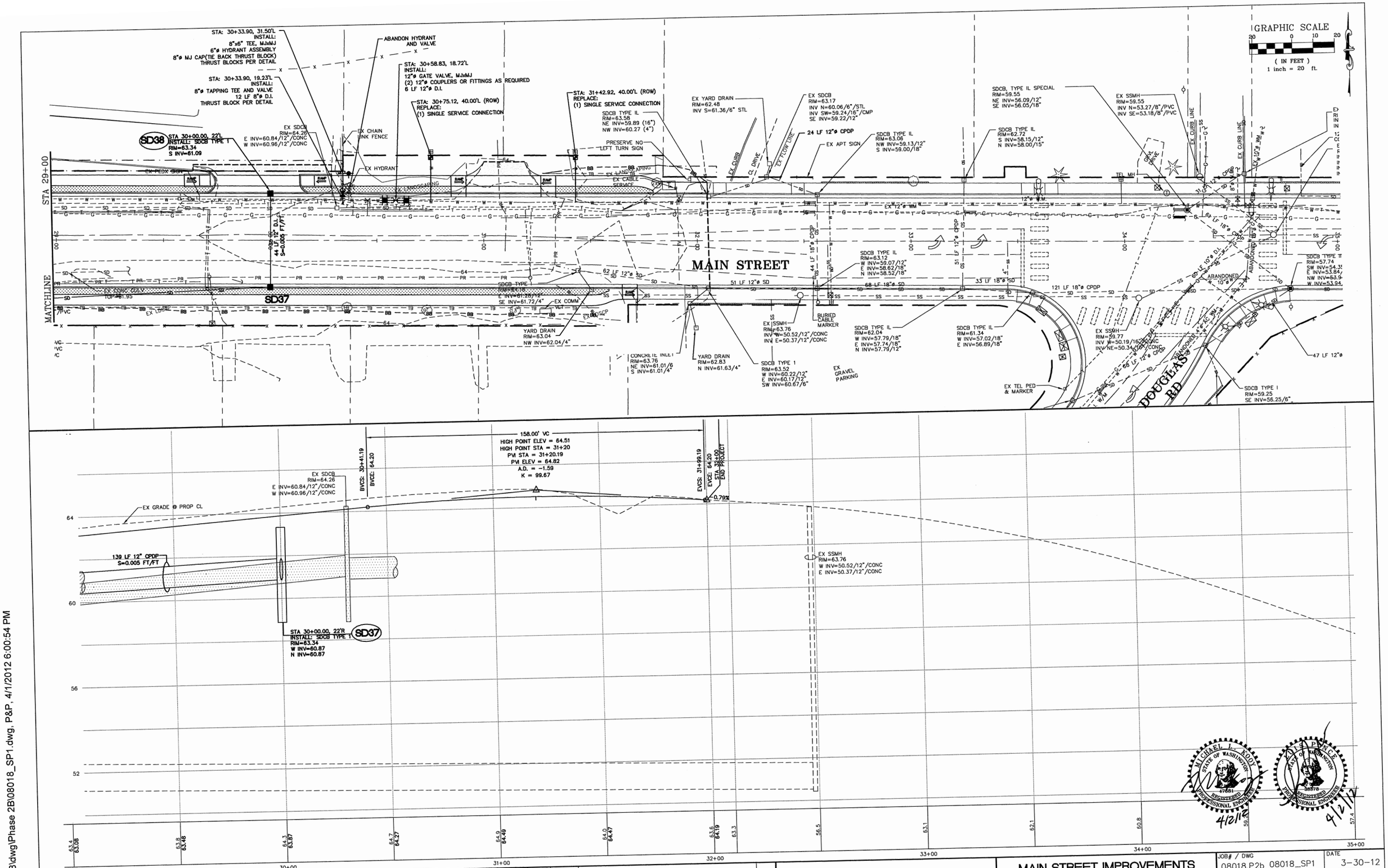

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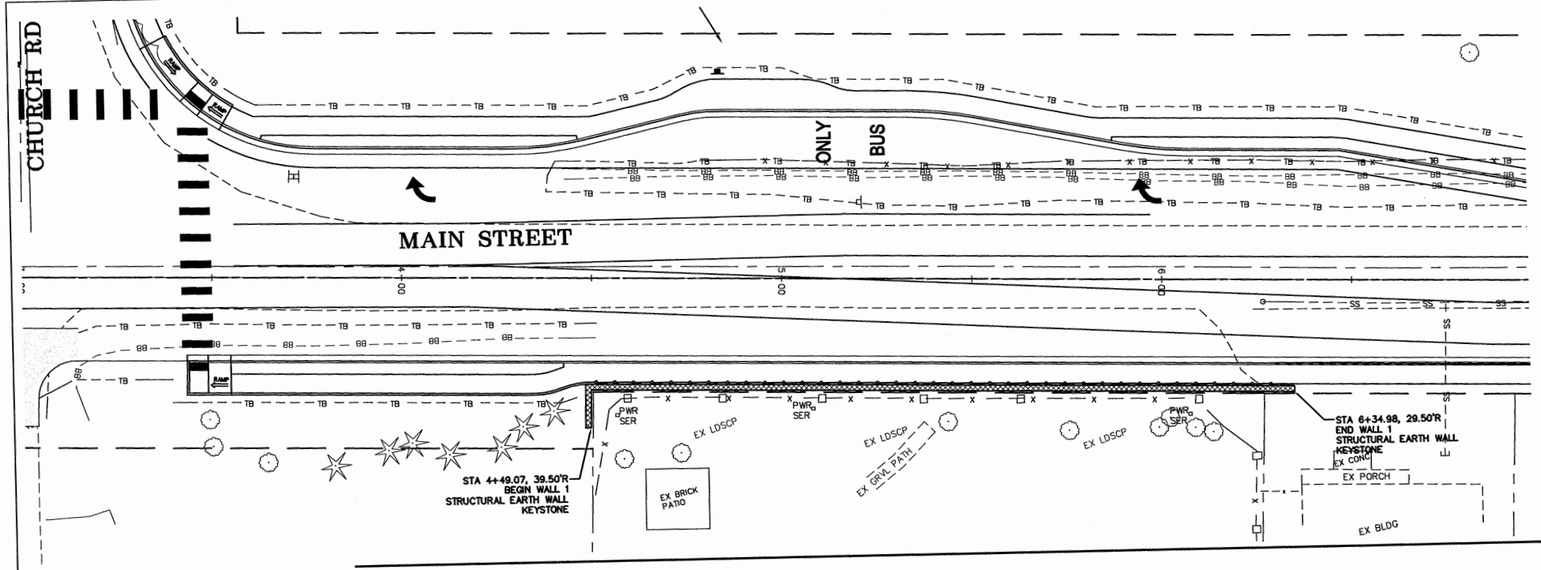
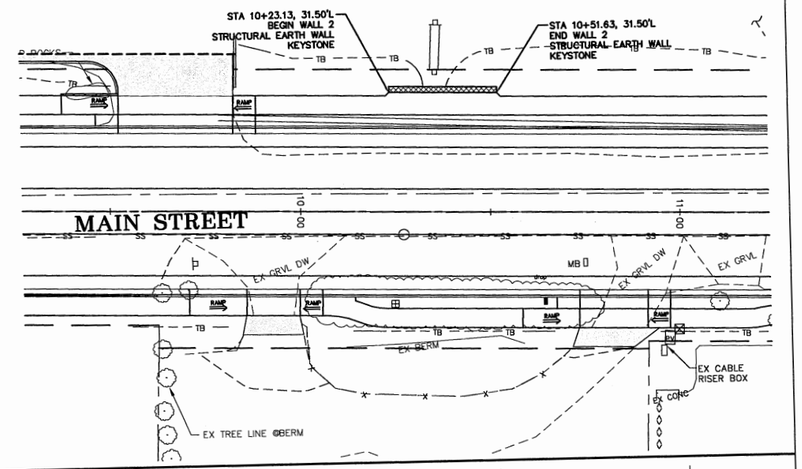
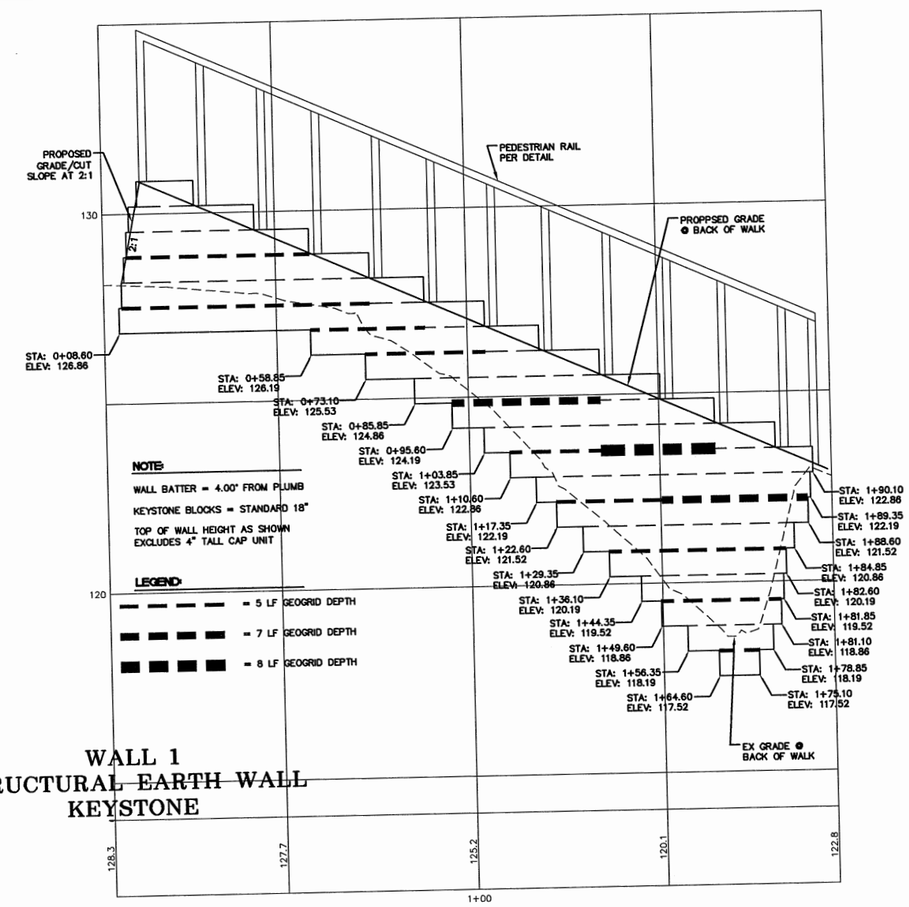




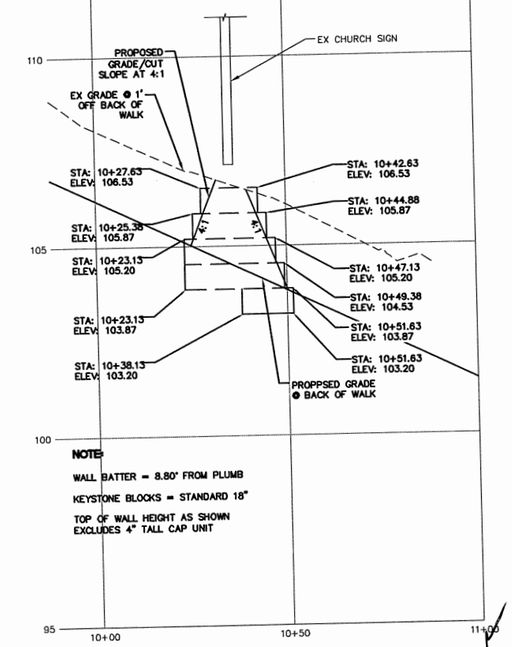
GRAPHIC SCALE

20 0 10 20

(IN FEET)
1 inch = 20 ft.



WALL 1
STRUCTURAL EARTH WALL
KEYSTONE



WALL 2
STRUCTURAL EARTH WALL
KEYSTONE

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	3-31-12 (DOUGLAS TO CHURCH) STRUCTURAL EARTH WALL PLAN AND PROFILE	JOB# / DWG 08018.P2b 08018_WALLS SCALE H: 1"=20' V: 1"=2' DATE 3-28-12 SHEET 27

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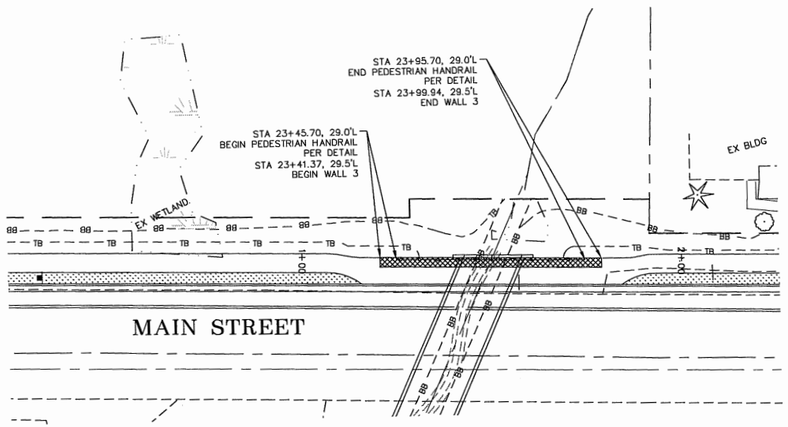
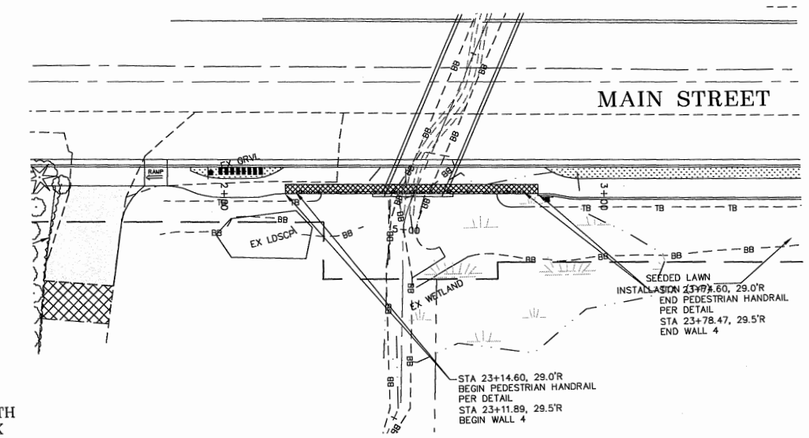
GRAPHIC SCALE

20 0 10 20

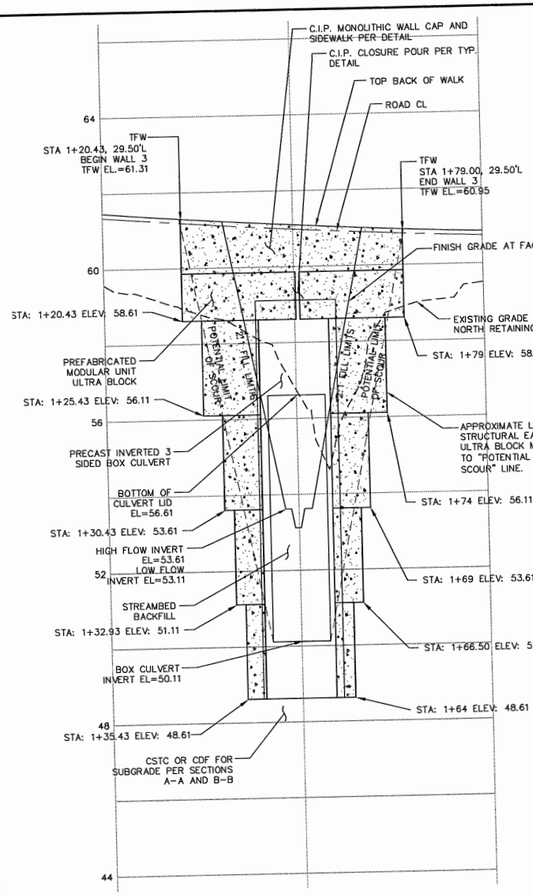
(IN FEET)
1 inch = 20 ft.



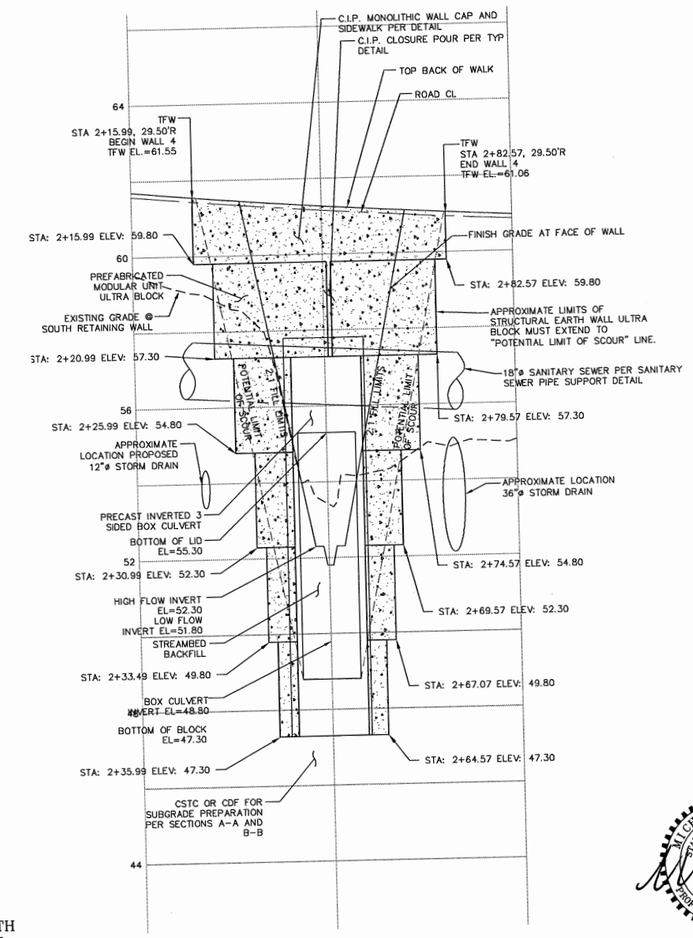
WALL #3
STRUCTURAL EARTH
WALL ULTRABLOCK
PLAN



WALL #4
STRUCTURAL EARTH
WALL ULTRABLOCK
PLAN



WALL #3
STRUCTURAL EARTH
WALL ULTRABLOCK
PROFILE



WALL #4
STRUCTURAL EARTH
WALL ULTRABLOCK
PROFILE

MICHAEL L. KOOY
STATE OF WASHINGTON
27681
REGISTERED
PROFESSIONAL ENGINEER
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LUIS POLICE
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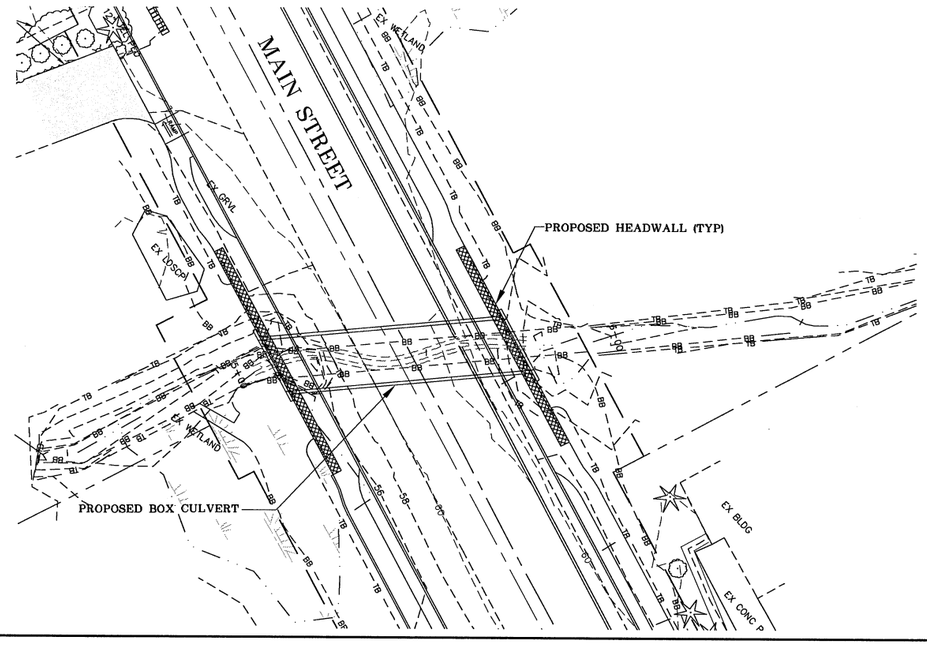
38318
REGISTERED
PROFESSIONAL ENGINEER
4/2/12

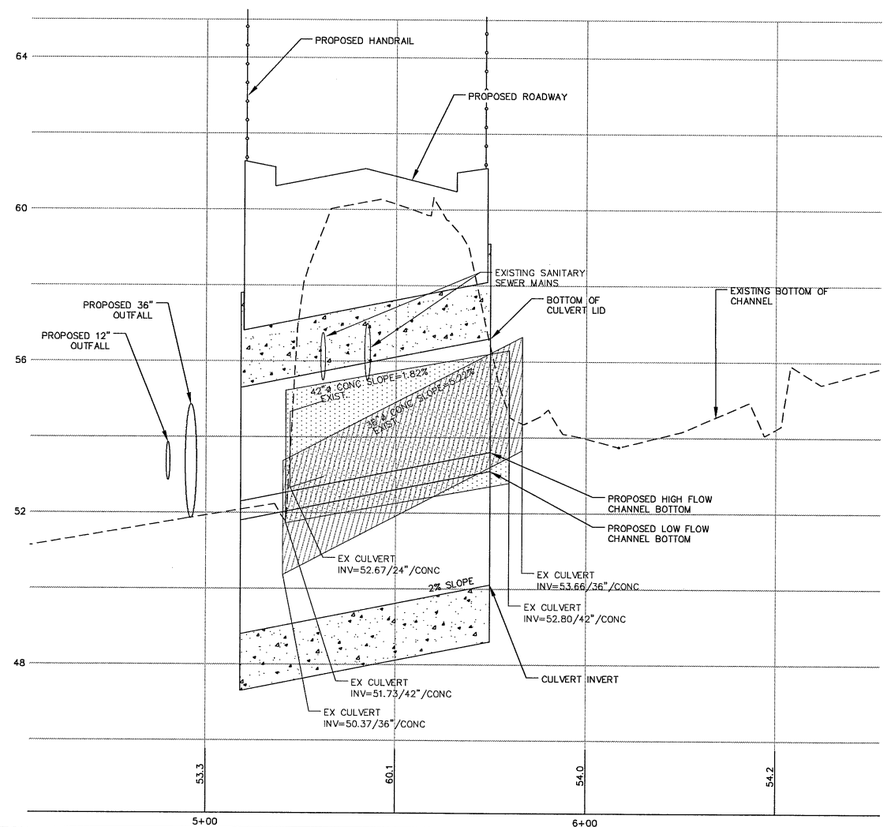
DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) NORTH AND SOUTH WALLS PLANS AND PROFILES	JOB# / DWG 08018.P2b 08018_SP1 SCALE H: 1"=20' V: 1"=2' DATE 3-30-12 SHEET 28

GRAPHIC SCALE

20 0 10 20

(IN FEET)
1 inch = 20 ft.





DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) PROPOSED CULVERT PLAN AND PROFILE	JOB# / DWG 08018.P2b 08018_SP1 SCALE H:1"=20' V:1"=2' DATE 3-30-12 SHEET 29

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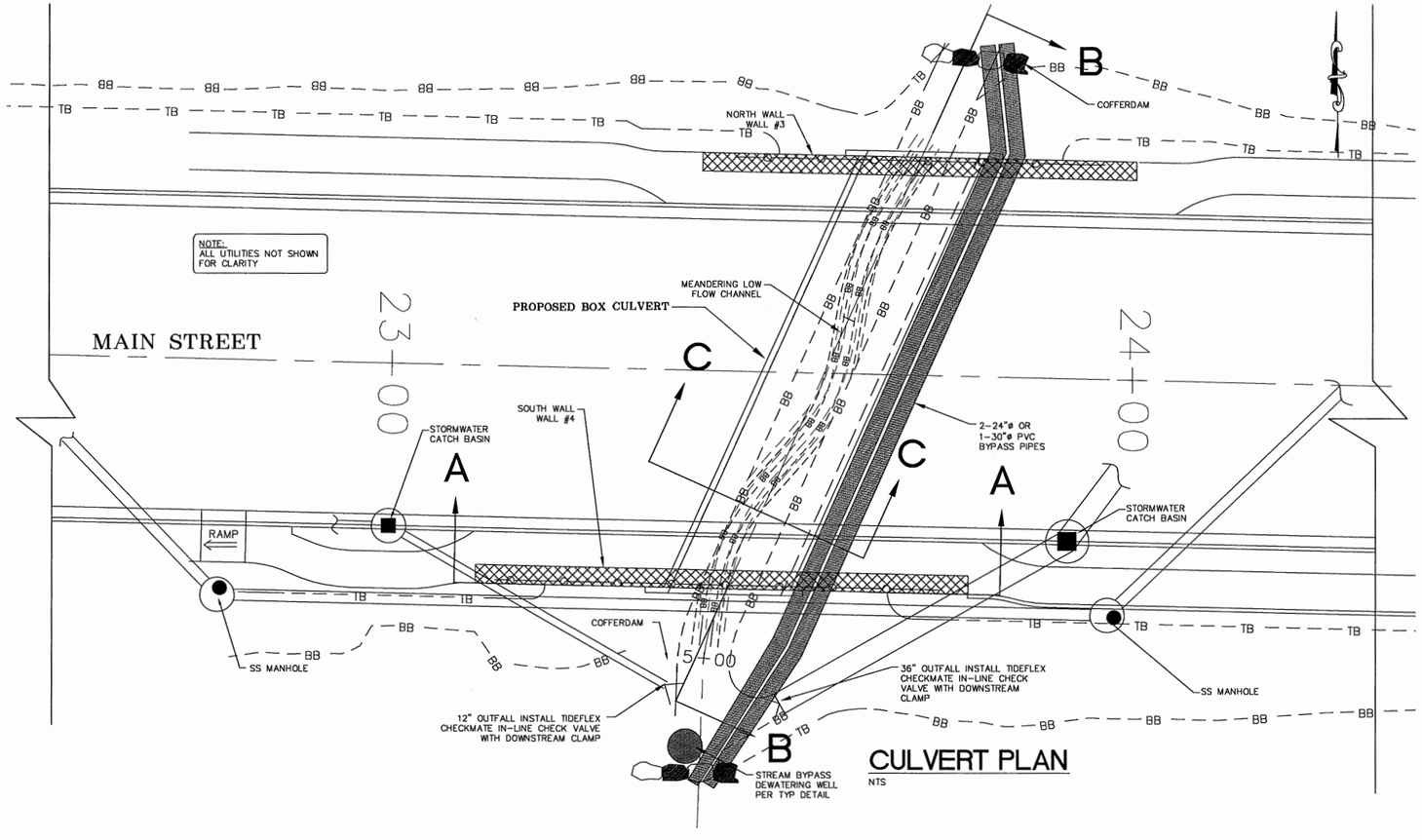
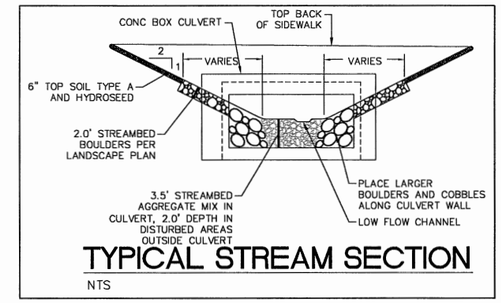


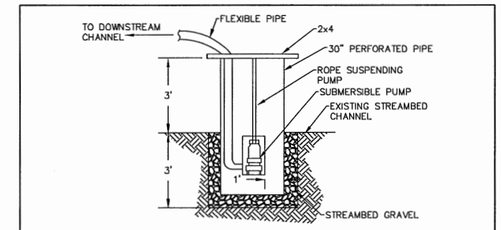
CULVERT PLAN

NTS



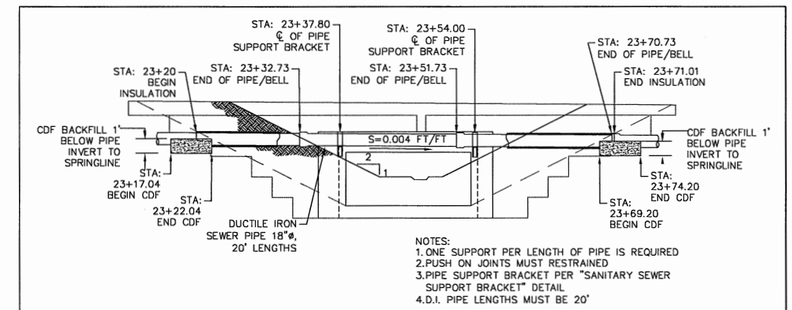
TYPICAL STREAM SECTION

NTS



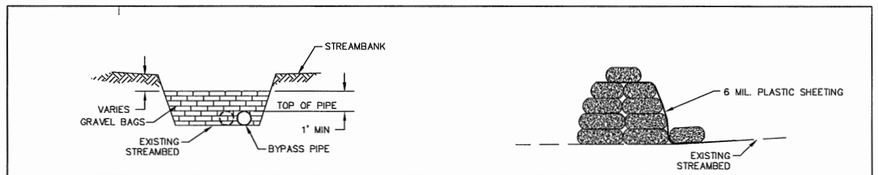
STREAM BYPASS/DEWATERING WELL DETAIL

NTS



SANITARY SEWER PIPE SUPPORT DETAIL

NTS

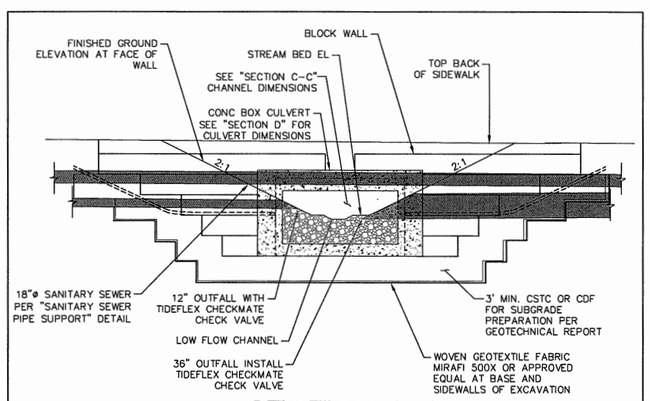


COFFERDAM FOR STREAM BYPASS DETAIL

NTS

COFFERDAM SECTION VIEW

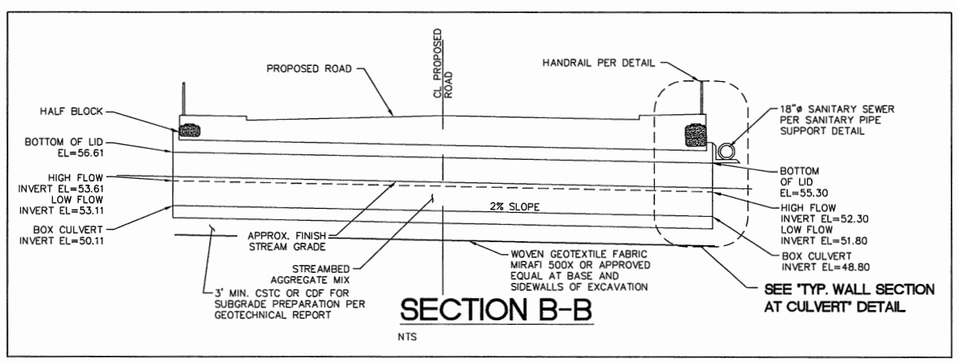
NTS



SECTION A-A

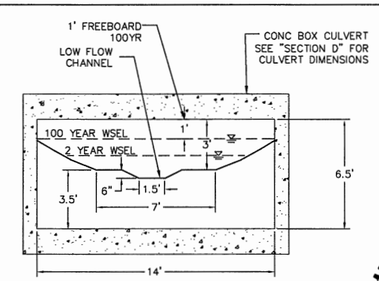
(DETAIL DEPICTS WALL #4, SOUTH WALL)

NTS



SECTION B-B

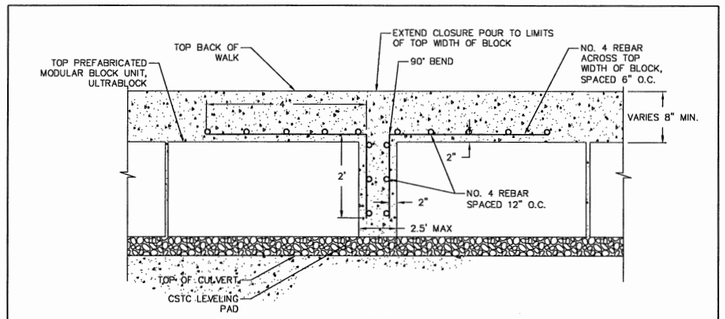
NTS



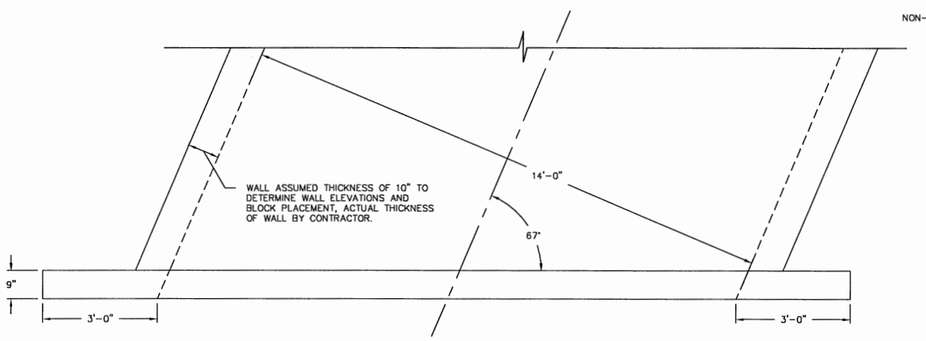
SECTION C-C

NTS

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) CULVERT AND WALL DETAILS	JOB# / DWG 08018.P2b 08018_SP1 SCALE H: 1"=40' V: n/a	DATE 3-30-12 SHEET 30

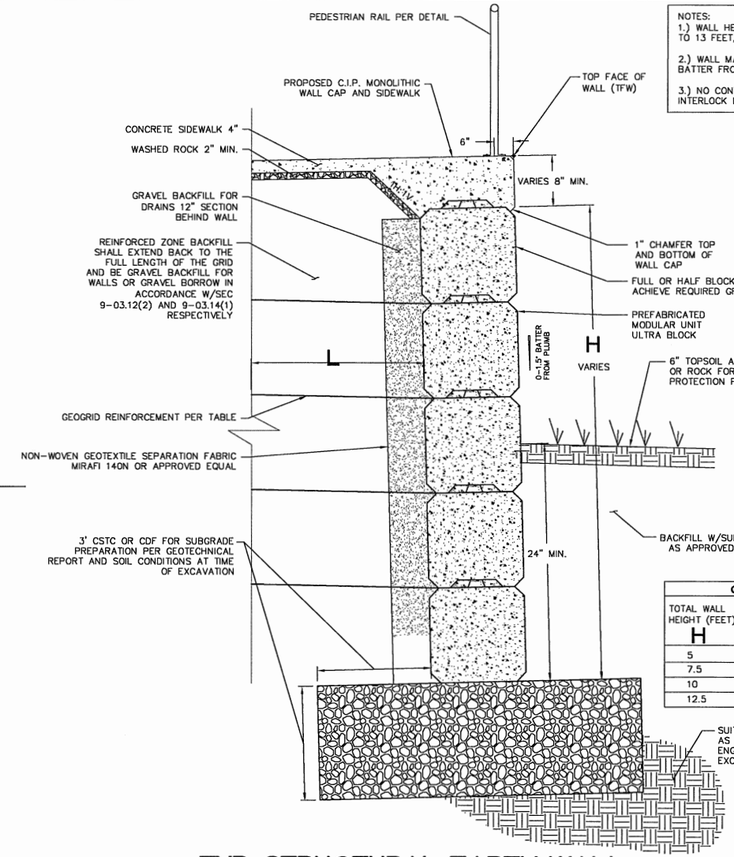


C.I.P. CLOSURE POUR TYP.



SECTION E-E

NTS



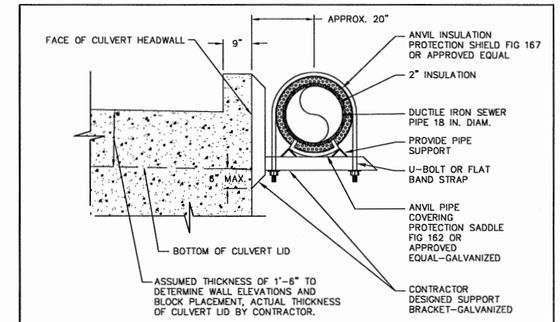
TYP. STRUCTURAL EARTH WALL ULTRABLOCK SECTION

NTS (DETAIL DEPICTS WALL #4, SOUTH WALL)

NOTES:
1.) WALL HEIGHT (H) MAY VARRIES FROM 2.5 FEET TO 13 FEET, DEPENDING ON LOCATION.

2.) WALL MAY BE BUILT PLUMB UP TO 1.5 DEGREE BATTER FROM TRUE VERTICAL OR PLUMB.

3.) NO CONTINUOUS VERTICAL SEAMS ALLOWED; INTERLOCK LATERALLY WITHIN ROWS OF BLOCKS.



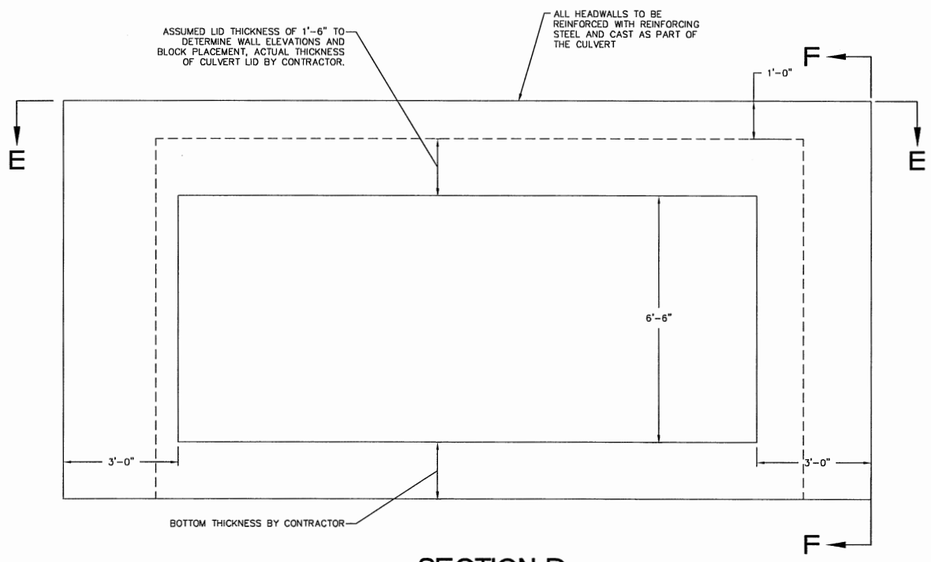
SANITARY SEWER SUPPORT BRACKET

NTS

NOTE:
CONTRACTOR DESIGNED SUPPORT BRACKET. BRACKET NOT TO EXTEND PAST TOP OF CONCRETE HEADWALL OR 6" BELOW BOTTOM OF CULVERT LID.

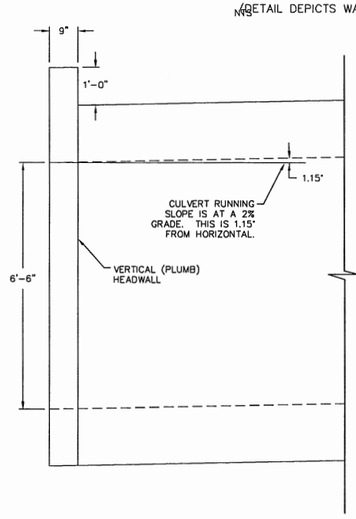
GEOGRID REINFORCEMENT (L) VS WALL HEIGHT (H)

TOTAL WALL HEIGHT (FEET) H	GEOGRID LOCATION	GEOGRID TYPE	GEOGRID LENGTH (FEET) L
5	ALL LAYERS	MIRAGRID 5XT	6.0
7.5	ALL LAYERS	MIRAGRID 5XT	7.5
10	ALL LAYERS	MIRAGRID 5XT	10
12.5	ALL LAYERS	MIRAGRID 5XT	12.5



SECTION D

NTS



SECTION F-F

NTS

Notes:
-Culvert structure shall be a contractor designed element constructed with segmented precast concrete elements including four sided culvert , top segment, and two end walls as shown schematically here. Design shall include connections between segments, between culvert and top, and culvert and end walls.

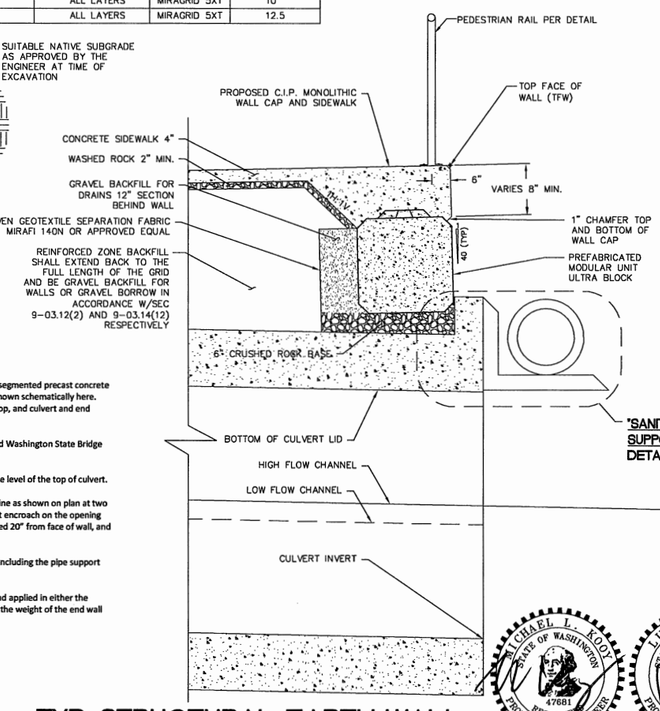
-Design shall be in accordance with current AASHTO Bridge Specification and Washington State Bridge Design Manual with HS25 vehicle loading.

-Water table elevation for design of the culvert shall be assumed to be at the level of the top of culvert.

-South culvert end wall shall be designed to support an 18" sanitary sewer line as shown on plan at two locations per plan. Using a contractor designed support bracket that will not encroach on the opening size of the culvert. Design shall be for 3.7 kips in the vertical direction applied 20" from face of wall, and 2 kips in the horizontal direction at each support location.

-Submit design drawings and calculations for the precast culvert elements (including the pipe support bracket) for review before fabrication.

-Design end wall and end wall connection for 200 psf out of plane lateral load applied in either the inward or outward direction. In addition, design the connection to support the weight of the end wall from the face of the culvert.



TYP. STRUCTURAL EARTH WALL ULTRABLOCK SECTION AT CULVERT

NTS (DETAIL DEPICTS WALL #4, SOUTH WALL)

MICHAEL L. KOOT STATE OF WASHINGTON 47681 REGISTERED PROFESSIONAL ENGINEER 4/2/12

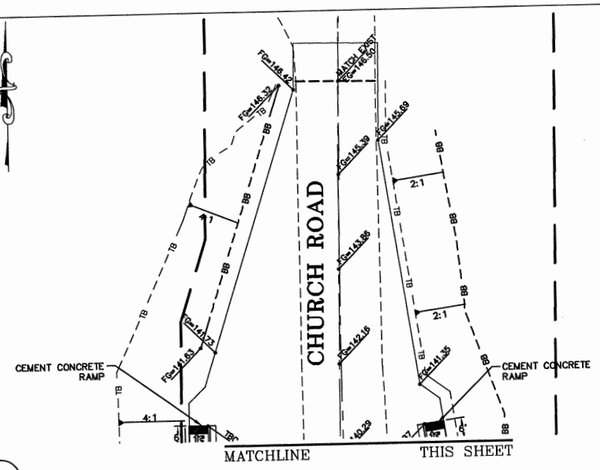
LUIS POLICE STATE OF WASHINGTON 38378 REGISTERED PROFESSIONAL ENGINEER 4/2/12

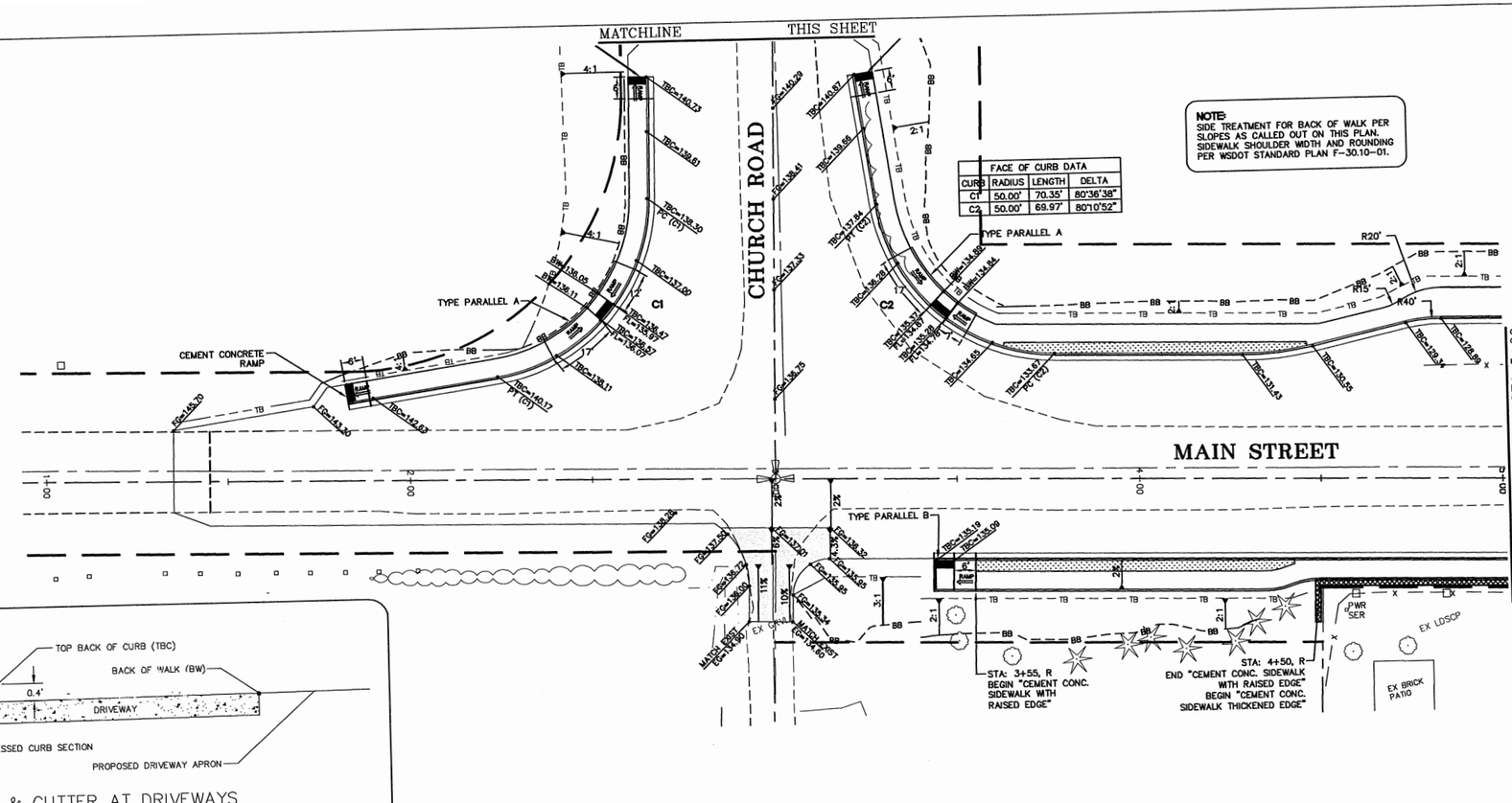
DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) CULVERT AND WALL DETAILS	JOB# / DWG 08018.P2b 08018_SP1 SCALE H: n/a V: n/a	DATE 3-30-12 SHEET 31

GRAPHIC SCALE

20 0 10 20

(IN FEET)
1 inch = 20 ft.



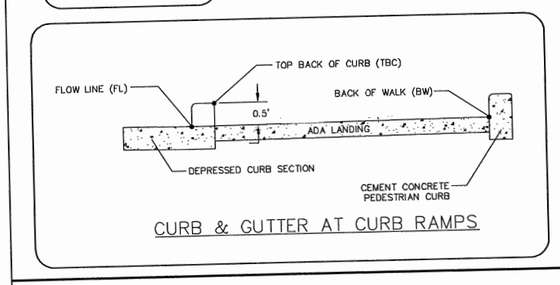


NOTE:
SIDE TREATMENT FOR BACK OF WALK PER SLOPES AS CALLED OUT ON THIS PLAN. SIDEWALK SHOULDER WIDTH AND ROUNDING PER WSDOT STANDARD PLAN F-30.10-01.

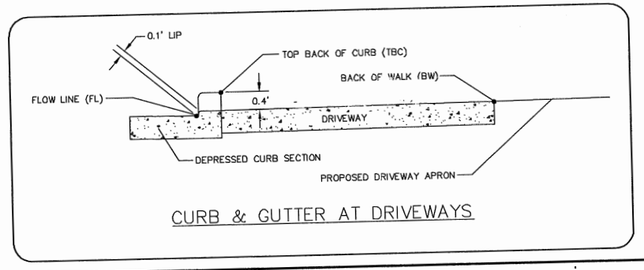
FACE OF CURB DATA			
CURB	RADIUS	LENGTH	DELTA
C1	50.00'	70.35'	80°36'38"
C2	50.00'	69.97'	80°10'52"

ABBREVIATIONS

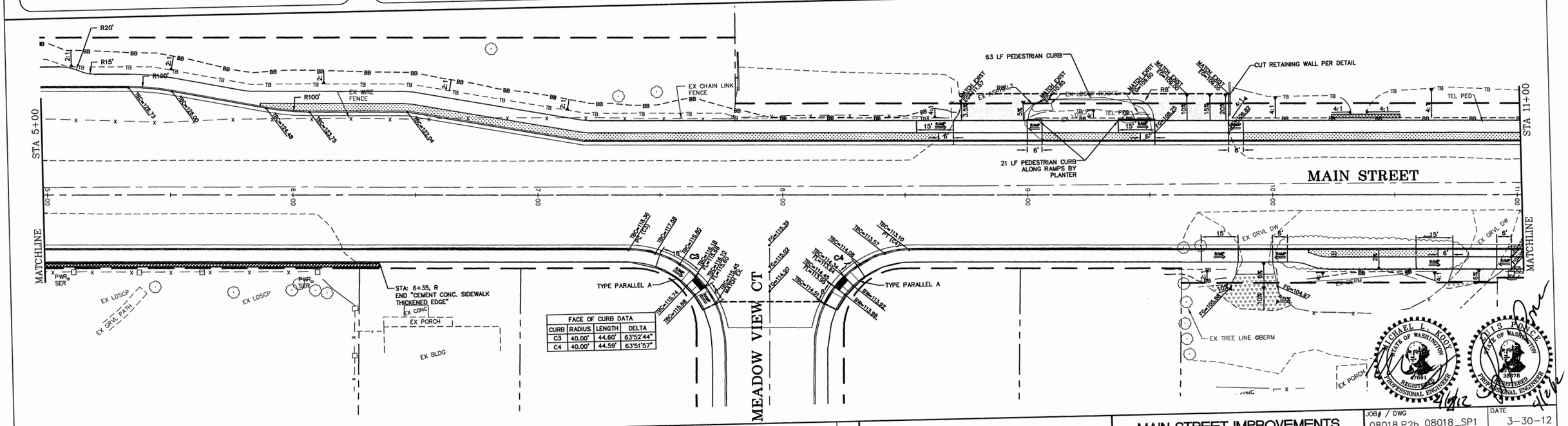
BW	= BACK OF WALK
FG	= FINISHED GRADE
FL	= FLOW LINE
TBC	= TOP BACK OF CURB
PC	= POINT OF CURVATURE
PT	= POINT OF TANGENCY



CURB & GUTTER AT CURB RAMPS



CURB & GUTTER AT DRIVEWAYS



FACE OF CURB DATA			
CURB	RADIUS	LENGTH	DELTA
C3	40.00'	44.60'	63°52'44"
C4	40.00'	44.59'	63°51'57"

DESIGNED BY MLK/LP	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 1+00 TO 11+00 GRADING AND SIDEWALK PLAN
DRAWN BY LMC	PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407		JOB# / DWG 08018.P2b 08018_SP1
CHECKED BY LP	NO. DATE REVISION BY		SCALE H:1"=20' V: n/a
			DATE 3-30-12
			SHEET 32

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GRAPHIC SCALE

20 0 10 20

(IN FEET)
1 inch = 20 ft.

NOTE:
SIDE TREATMENT FOR BACK OF WALK PER SLOPES AS CALLED OUT ON THIS PLAN. SIDEWALK SHOULDER WIDTH AND ROUNDING PER WSDOT STANDARD PLAN F-30.10-01.

STA 11+00 — STA 17+00

MAIN STREET

MATCHLINE

EX 18" STUMP
EX WIRE FENCE
TEL PED
(2) EX 6" STUMPS
EX GRVL DW
EX EXTRUDED CURB
21 LF PEDESTRIAN CURB ALONG RAMP AND DRIVEWAY
STA: 13+94, R BEGIN "CEMENT CONC. SIDEWALK WITH RAISED EDGE"
STA: 16+93, R END "CEMENT CONC. SIDEWALK WITH RAISED EDGE"
EX GRVL
EX ASPHALT
CONC PAD W/MAILBOX
EX RR TIE WALL
EX CONC
EX BLDG

CONCRETE DRIVEWAY FINISHING TEXTURE

BROOM FINISH EAST TO WEST
BROOM FINISH NORTH TO SOUTH

DUE TO STEEP SLOPES TEXTURE SIDE DRIVEWAY PER WSDOT STD SPEC 6-02.3(10)D, TEXTURE FOR BRIDGE DECK AND BRIDGE APPROACH SLABS. COMB LINES SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL ON THE DRIVEWAY.

SHANNON AVE

FACE OF CURB DATA			
CURB	RADIUS	LENGTH	DELTA
C5	40.00'	33.68'	48°14'25"
C6	40.00'	63.08'	90°21'0"

TYPE PARALLEL A
TYPE SINGLE DIRECTION B MODIFIED
EX LDSCP & IRR SYSTEM
EX LDSCP
EX ASPHALT PKG
EX WALK
EX LEAN-TO
EX GRVL
EX 6" WIDE CONC WALKWAY
TEL VAULT
TEL PED (2)
EX TREE
EX LANE

STA 17+00 — STA 23+00

MAIN STREET

STA: 21+55, R BEGIN "CEMENT CONC. SIDEWALK WITH RAISED EDGE"
STA: 22+08, R END "CEMENT CONC. SIDEWALK WITH RAISED EDGE"

MICHAEL L. AOKI — STATE OF WASHINGTON — 47681 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12
LUIS A. ROSE — STATE OF WASHINGTON — 24976 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

DESIGNED BY MLK/LP	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248
DRAWN BY LMC		PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 11+00 TO 23+00 GRADING AND SIDEWALK PLAN
CHECKED BY LP			

NO.	DATE	REVISION	BY

JOB# / DWG	DATE
08018.P2b 08018_SP1	3-30-12
SCALE H:1"=20' V:n/a	SHEET 33

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GRAPHIC SCALE

(IN FEET)
1 inch = 20 ft.

HENDRICKSON AVE

MAIN STREET

EAGLE PLACE

DOUGLAS RD

STA 23+00

STA 29+00

MATCHLINE

STA: 23+41.37, L
BEGIN "C.I.P. MONOLITHIC WALL CAP AND SIDEWALK"

STA: 23+99.94, L
END "C.I.P. MONOLITHIC WALL CAP AND SIDEWALK"

NOTE:
SIDE TREATMENT FOR BACK OF WALK PER SLOPES AS CALLED OUT ON THIS PLAN. SIDEWALK SHOULDER WIDTH AND ROUNDING PER WSDOT STANDARD PLAN F-30.10-01.

CEMENT CONCRETE RAMP

TYPE PARALLEL A

TYPE SINGLE DIRECTION B MODIFIED

TYPE SINGLE DIRECTION A

TYPE COMBINATION

FILL SLOPE AT 2:1 BY SIGN AND LANDSCAPING

STA: 25+13, R
END "CEMENT CONC. SIDEWALK WITH RAISED EDGE"

STA: 23+11.89, R
BEGIN "C.I.P. MONOLITHIC WALL CAP AND SIDEWALK"

STA: 23+78.47, R
END "C.I.P. MONOLITHIC WALL CAP AND SIDEWALK"
BEGIN "CEMENT CONC. SIDEWALK WITH RAISED EDGE"

EX CONC PAD

EX BLDG

EX LDSCP

TEL PED

DRVL

FACE OF CURB DATA

CURB	RADIUS	LENGTH	DELTA
C7	38.00'	31.14'	46°57'32"
C8	40.00'	63.18'	90°30'5"

FACE OF CURB DATA

CURB	RADIUS	LENGTH	DELTA
C9	40.00'	62.83'	90°0'0"
C10	40.00'	62.83'	90°0'0"

20 LF CURB AND GUTTER

14 LF PEDESTRIAN CURB EXPOSED AND FINISHED BOTH SIDES

EX CHAIN LINK FENCE

TYPE SINGLE DIRECTION A

EX LANDSCAPING

EX CURB

CL DRIVE

EX FLOW LINE

EX CURB LINE

TEL MH

DRVL DRIVE

EX COMM

BURIED CABLE MARKER

EX GRAVEL PARKING

EX TEL PED & MARKER

MICHAEL L. KODY
STATE OF WASHINGTON
47681
REGISTERED PROFESSIONAL ENGINEER
4/2/12

ALIS POPE
STATE OF WASHINGTON
46378
REGISTERED PROFESSIONAL ENGINEER
4/2/12

DESIGNED BY MLK/LP	DRAWN BY LMC	CHECKED BY LP	

R&E REICHHARDT & EBE ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
PO BOX 936
FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
STA 23+00 TO 32+00 GRADING AND SIDEWALK PLAN

JOB# / DWG: 08018.P2b 08018_SP1
DATE: 3-30-12
SCALE: H:1"=20' V:n/a
SHEET: 34

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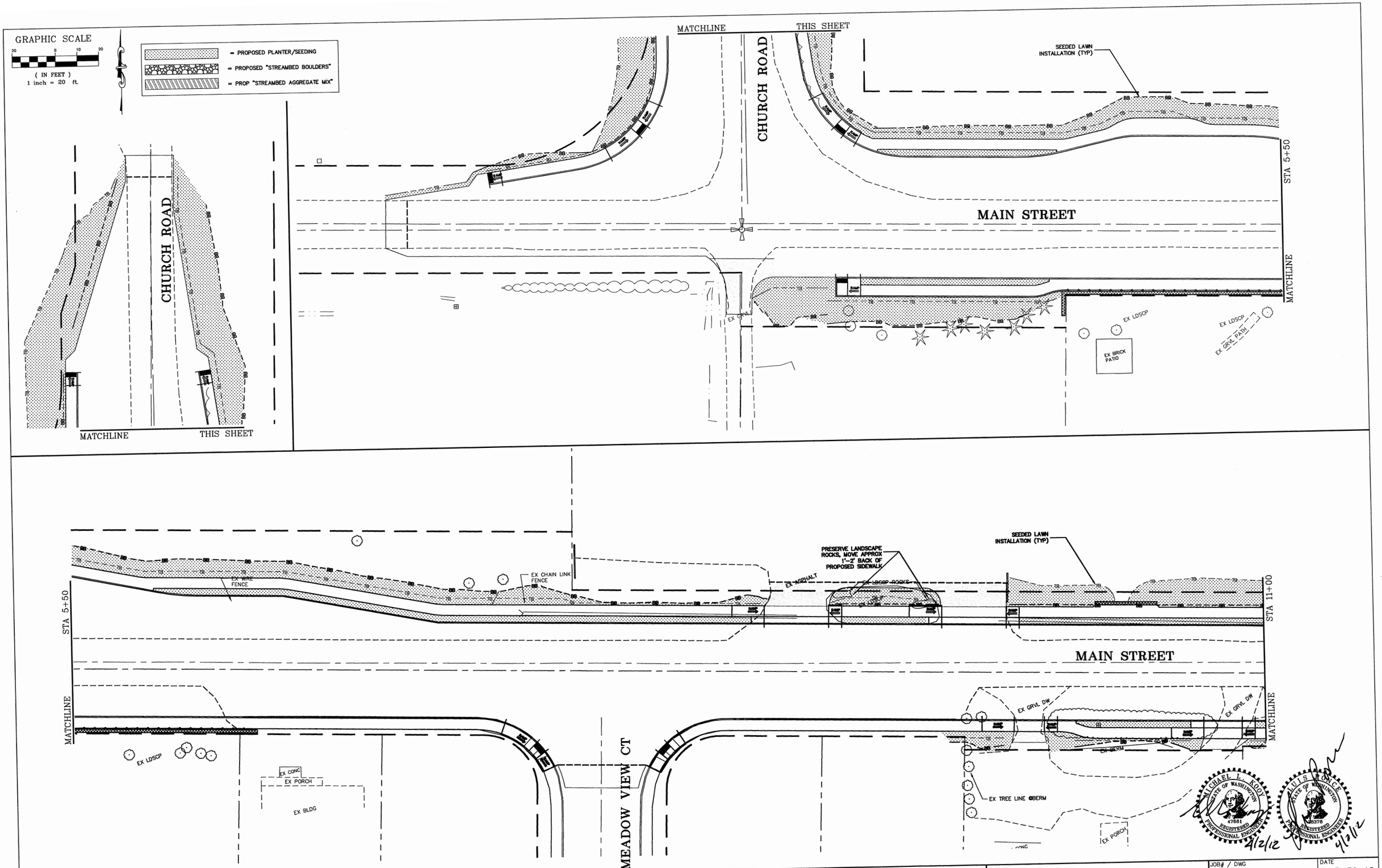

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 1+00 TO 11+00 LANDSCAPE PLAN	JOB# / DWG 08018.P2b 08018_SP1 SCALE H: 1"=20' V: n/a DATE 3-30-12 SHEET 35

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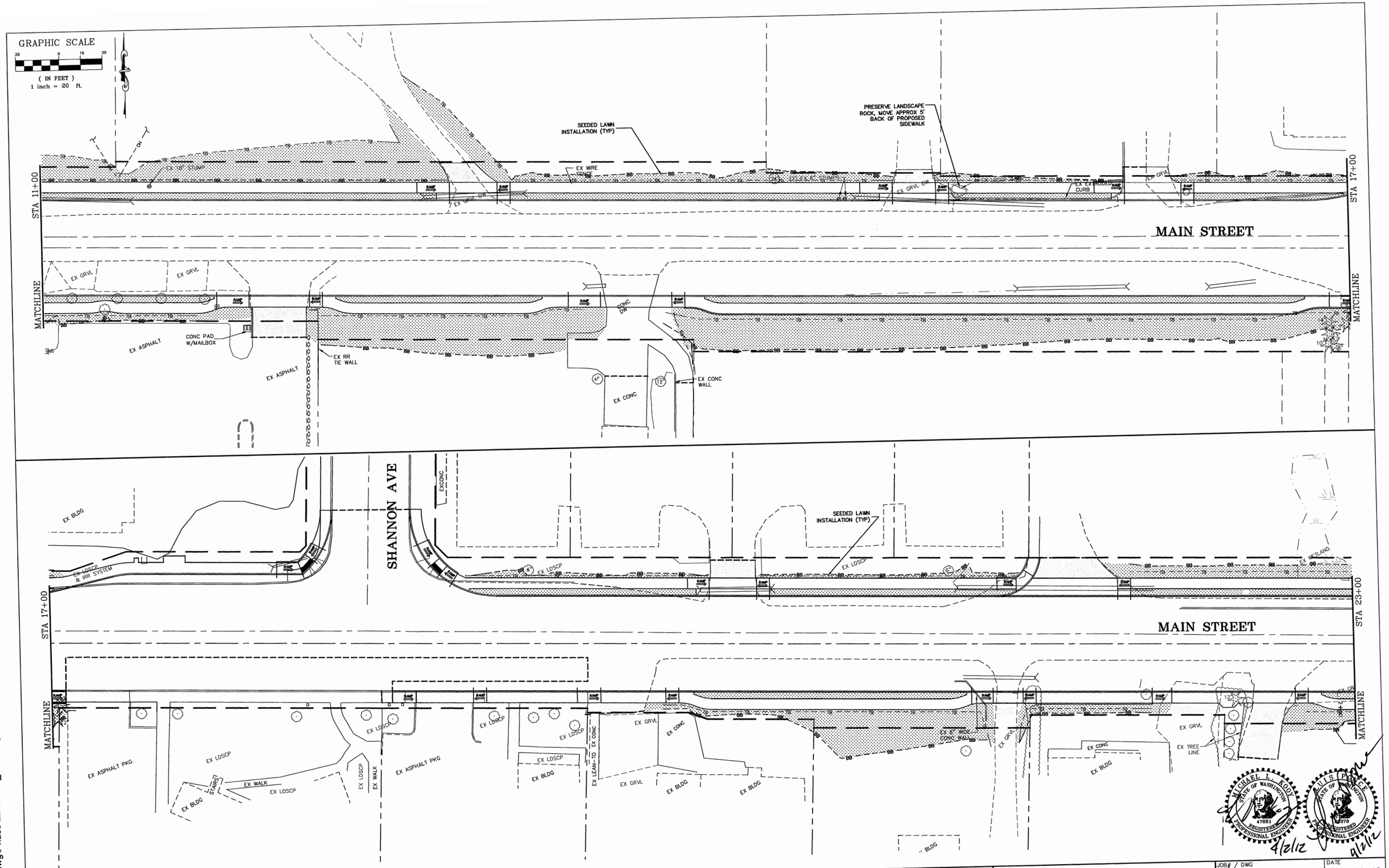

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JOB# / DWG	DATE
08018.P2b 08018_SP1	3-30-12
SCALE H: 1"=20' V: n/a	SHEET 36

MICHAEL L. KODY STATE OF WASHINGTON 47681 REGISTERED PROFESSIONAL ENGINEER 4/2/12

LUIS PONCE STATE OF WASHINGTON 48378 REGISTERED PROFESSIONAL ENGINEER 4/2/12

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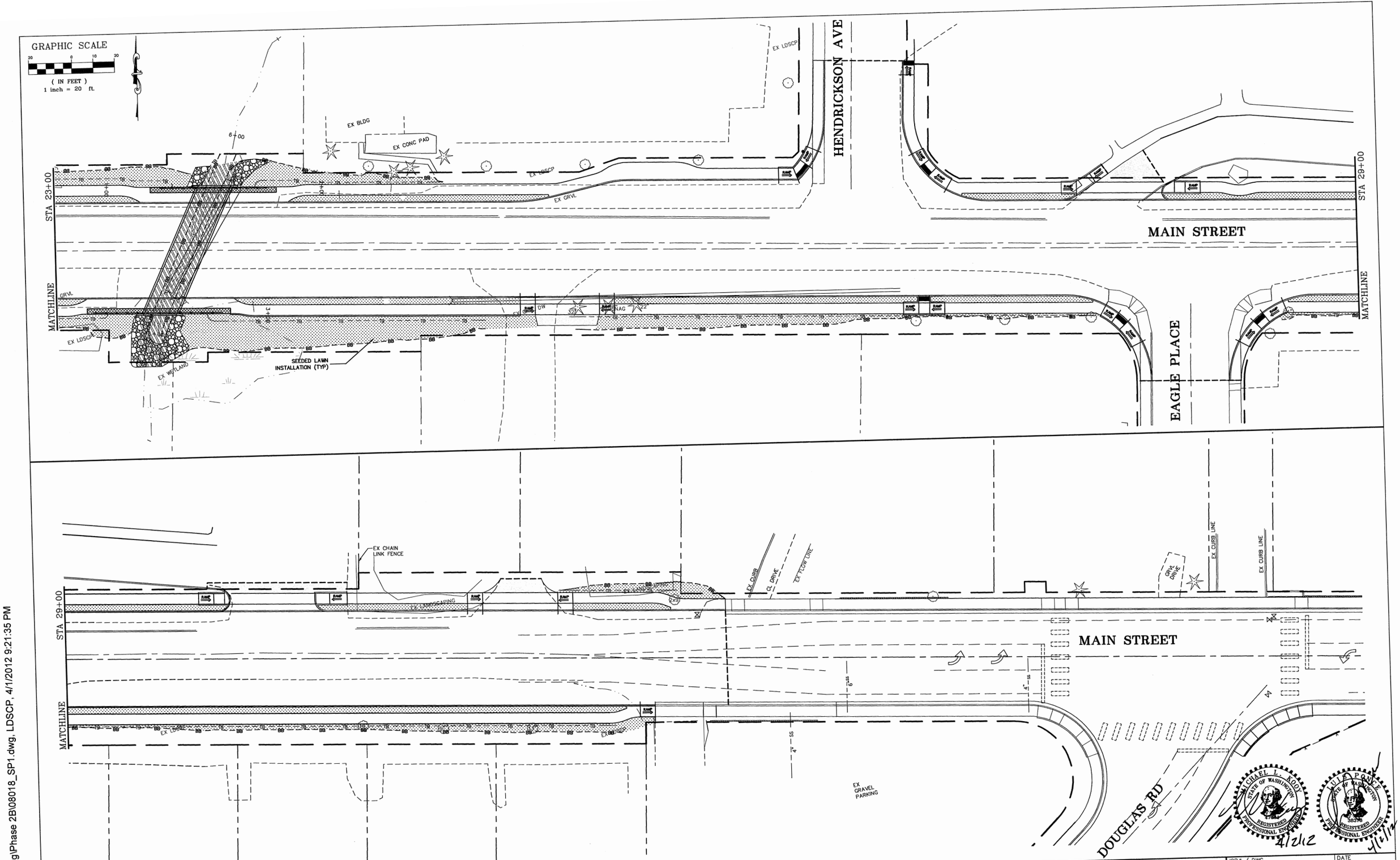

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) STA 23+00 TO 32+00 LANDSCAPE PLAN	JOB# / DWG 08018.P2b 08018_SP1 SCALE H:1"=20' V:n/a DATE 3-30-12 SHEET 37

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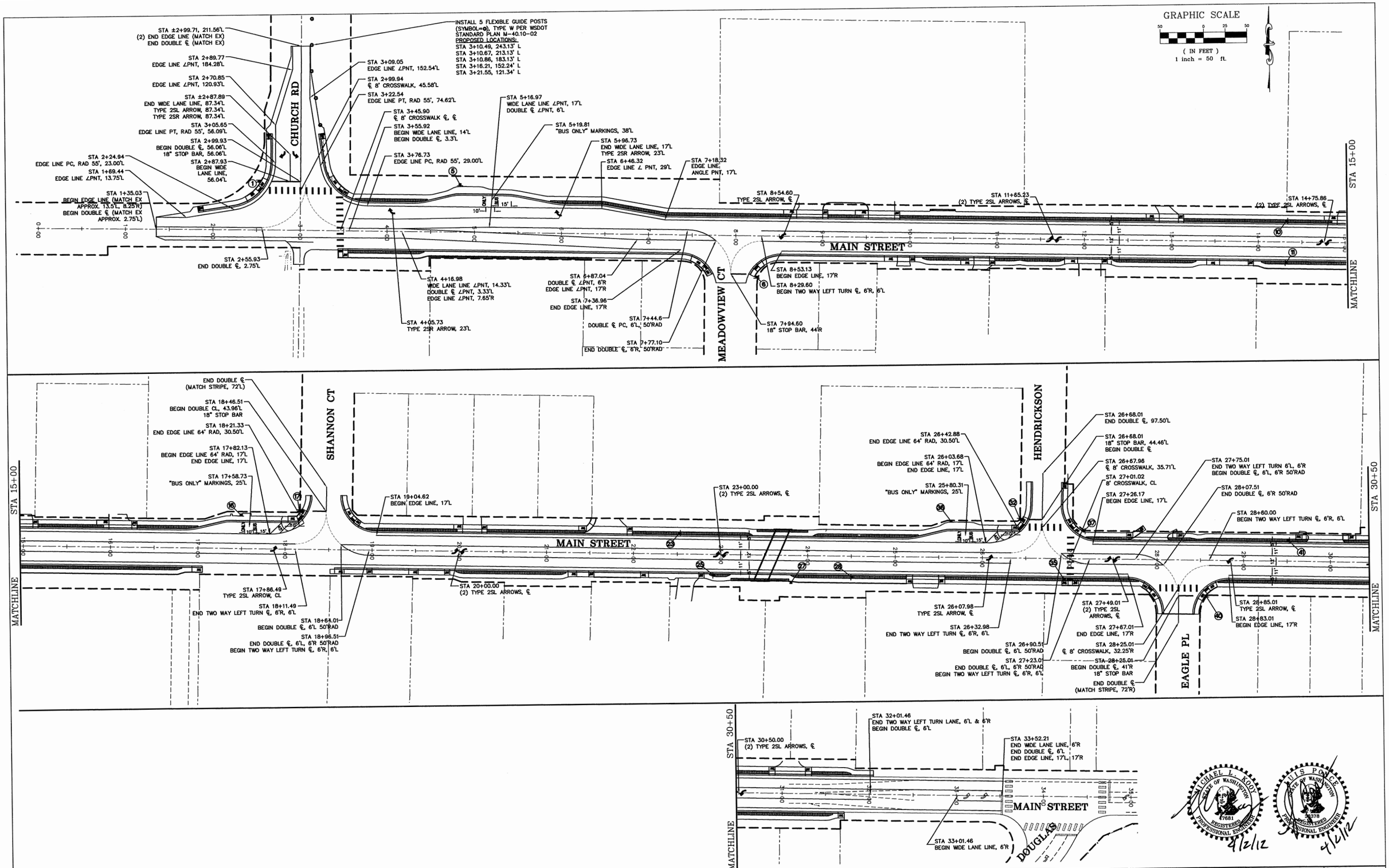

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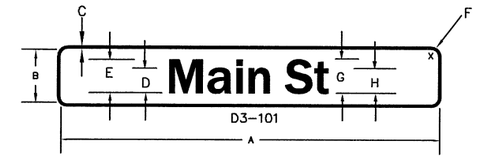
SIGN NO.	SIGN DESIGNATION	SIGN SIZE (Inches) (Width X Height)	SIGN DESCRIPTION	EXISTING LOCATION	PROPOSED LOCATION	SHEETING TYPE (Background)	SHEETING TYPE (Legend & Border)	POST INFO	REMARKS
1	R1-1	30 X 30	STOP		2+52.70, 56.00' L	IV	n/a	ST-2	NEW SIGN AND POST
	D3-101	PER DETAIL	"Church Rd"			IV	VIII		MOUNT ABOVE STOP SIGN
	D3-101	PER DETAIL	"Main St"			IV	VIII		MOUNT ABOVE STOP SIGN
2	–	–	STOP	2+87.32, 36.26' L		–	–	–	REMOVE
3	–	–	SIGN POST AND CONCRETE BASE	3+71.60, 26.61' L		–	–	–	REMOVE
4	–	–	DO NOT PASS	5+20.27, 20.13' L		–	–	–	REMOVE
5	–	–	BUS STOP AND SCHEDULE	8+66.60, 29.54' L	4+83.05, 54.50' L	–	–	ST-2	PRESERVE SIGN AND POST, NEW POST FOUNDATION
6	R1-1	30 X 30	STOP		8+24.41, 47.43' R	IV	n/a	ST-2	NEW SIGNS AND POST
	D3-101	PER DETAIL	"Meadow View Ct"			IV	VIII		MOUNT ABOVE STOP SIGN
	D3-101	PER DETAIL	"Main St"			IV	VIII		MOUNT ABOVE STOP SIGN
7	–	–	SPEED ZONE AHEAD	9+27.33, 13.83' R		–	–	–	REMOVE
8	–	–	MISC. BUSINESS SIGN - CHURCH	10+35.00, 36.00' L		–	–	–	PRIVATE PROPERTY, PRESERVE
9	–	–	MISC. BUSINESS SIGN - BUSINESS PARK	12+20.15, 29.07' R		–	–	–	PRIVATE PROPERTY, PRESERVE
10	R2-1	24 X 30	SPEED LIMIT - 35 MPH		14+32.22, 24.00' L	IV	n/a	ST-2	NEW SIGN AND POST
11	R2-1	24 X 30	SPEED LIMIT - 25 MPH		14+32.22, 24.00' R	IV	n/a	ST-2	NEW SIGN AND POST
12	–	–	SPEED LIMIT	15+50.24, 10.29' R		–	–	–	REMOVE
13	–	–	SPEED LIMIT	15+54.15, 19.30' L		–	–	–	REMOVE
14	–	–	MISC. BUSINESS SIGN - "TERRI'S SALON"	16+26.43, 29.35' L	16+26.43, 35.00' L	–	–	–	RELOCATE SIGN AND POSTS
15	–	–	MISC. BUSINESS SIGN - BUSINESS PARK	17+49.14, 41.45' L		–	–	–	PRIVATE PROPERTY, PRESERVE
16	–	–	BUS STOP AND SCHEDULE	18+11.60, 35.15' L	17+49.07, 38.50' L	–	–	ST-2	PRESERVE SIGN AND POST, NEW POST FOUNDATION
17	R1-1	30 X 30	STOP		18+15.78, 44.15' L	IV	n/a	ST-2	NEW SIGNS AND POST
	D3-101	PER DETAIL	"Shannon Ave"			IV	VIII		MOUNT ABOVE STOP SIGN
	D3-101	PER DETAIL	"Main St"			IV	VIII		MOUNT ABOVE STOP SIGN
18	–	–	STOP	18+21.05, 43.80' L		–	–	–	REMOVE
19	–	–	END WALK	19+46.59, 27.65' R		–	–	–	REMOVE
20	–	–	MISC. BUSINESS SIGN - BOAT BUSINESS	19+92.94, 22.43' R	20+05.00, 40.00' R	–	–	–	RELOCATE SIGN AND POSTS
21	–	–	MISC. BUSINESS SIGN - "FERNDALE VILLA"	21+33.88, 33.58' L		–	–	–	PRIVATE PROPERTY, PRESERVE
22	–	–	SPEED LIMIT	22+49.37, 24.15' L		–	–	–	REMOVE
23	R2-1	24 X 30	SPEED LIMIT - 25 MPH		22+52.04, 24.00' L	IV	n/a	ST-2	NEW SIGN AND POST
24	–	–	MISC. BUSINESS SIGN - APARTMENTS	23+04.44, 37.28' R		–	–	–	PRIVATE PROPERTY, PRESERVE
25	R2-1	24 X 30	SPEED LIMIT - 25 MPH		22+92.24, 24.00' R	IV	n/a	ST-2	NEW SIGN AND POST
26	–	–	SCHOOL	23+27.61, 11.92' R		–	–	–	REMOVE
27	–	–	4"x4" POST-WATER MONITORING	23+54.19, 12.85' R	23+80.92, 31.00' R	–	–	–	RELOCATE SIGN AND POST
28	–	–	SCHOOL ADVANCE CROSSING ASSEMBLY		24+51.02, 24.00' R	–	–	ST-2	NEW SIGNS AND POST
	S1-1	30 X 30	SCHOOL			VIII	n/a		FLUORESCENT YELLOW-GREEN BACKGROUND, BLACK LEGEND AND BORDER
	W16-9P	24 X 10	"AHEAD" SUPPLEMENTAL PLAQUE			VIII	n/a		MOUNT BELOW SCHOOL SIGN, FLUORESCENT YELLOW-GREEN BACKGROUND, BLACK LEGEND AND BORDER
29	–	–	SPEED LIMIT	24+57.45, 14.54' R		–	–	–	REMOVE
30	–	–	"BUCKLE UP" SIGN	25+69.73, 15.20' R		–	–	–	REMOVE
31	–	–	SCHOOL	26+21.64, 15.11' R		–	–	–	REMOVE
32	R1-1	30 X 30	STOP		26+43.12, 44.46' L	IV	n/a	ST-2	NEW SIGNS AND POST
	D3-101	PER DETAIL	"Hendrickson Ave"			IV	VIII		MOUNT ABOVE STOP SIGN
	D3-101	PER DETAIL	"Main St"			IV	VIII		MOUNT ABOVE STOP SIGN
33	–	–	SCHOOL	26+43.25, 25.51' L		–	–	–	REMOVE
34	–	–	STOP	26+45.56, 28.28' L		–	–	–	REMOVE
35	–	–	SCHOOL CROSSING ASSEMBLY		26+94.10, 24.00' R	–	–	ST-2	NEW SIGNS AND POST
	S1-1	30 X 30	SCHOOL			VIII	n/a		FLUORESCENT YELLOW-GREEN BACKGROUND, BLACK LEGEND AND BORDER
	W16-7PL	24 X 12	DIAGONAL ARROW SUPPLEMENTAL PLAQUE			VIII	n/a		MOUNT BELOW SCHOOL SIGN, FLUORESCENT YELLOW-GREEN BACKGROUND, BLACK LEGEND AND BORDER
36	–	–	BUS STOP AND SCHEDULE	27+61.73, 26.30' L	25+63.61, 41.50' L	–	–	ST-2	PRESERVE SIGN AND POST, NEW POST FOUNDATION
37	–	–	SCHOOL CROSSING ASSEMBLY		27+16.26, 32.00' L	–	–	ST-2	NEW SIGNS AND POST
	S1-1	30 X 30	SCHOOL			VIII	n/a		FLUORESCENT YELLOW-GREEN BACKGROUND, BLACK LEGEND AND BORDER
	W16-7PL	24 X 12	DIAGONAL ARROW SUPPLEMENTAL PLAQUE			VIII	n/a		MOUNT BELOW SCHOOL SIGN, FLUORESCENT YELLOW-GREEN BACKGROUND, BLACK LEGEND AND BORDER
38	–	–	MISC. BUSINESS SIGN - CHURCH	28+48.00, 30.43' L		–	–	–	PRIVATE PROPERTY, PRESERVE
39	–	–	STOP	28+50.77, 42.58' R		–	–	–	REMOVE
40	–	–	STOP		28+56.91, 41.00' R	IV	n/a	ST-2	NEW SIGNS AND POST
	D3-101	PER DETAIL	"Eagle Pkwy"			IV	VIII		MOUNT ABOVE STOP SIGN
	D3-101	PER DETAIL	"Main St"			IV	VIII		MOUNT ABOVE STOP SIGN
41	–	–	SCHOOL ADVANCE CROSSING ASSEMBLY		29+51.02, 24.00' L	–	–	ST-2	NEW SIGNS AND POST
	S1-1	30 X 30	SCHOOL			VIII	n/a		FLUORESCENT YELLOW-GREEN BACKGROUND, BLACK LEGEND AND BORDER
	W16-9P	24 X 10	"AHEAD" SUPPLEMENTAL PLAQUE			VIII	n/a		MOUNT BELOW SCHOOL SIGN, FLUORESCENT YELLOW-GREEN BACKGROUND, BLACK LEGEND AND BORDER
42	–	–	SCHOOL	29+66.20, 20.00' L		–	–	–	REMOVE
43	–	–	NO LEFT TURN	31+96.00, 28.97' L	LEAVE IN PLACE	–	–	–	PRESERVE SIGN AND POST IN PLACE



SIGNING DETAILS (TYP)

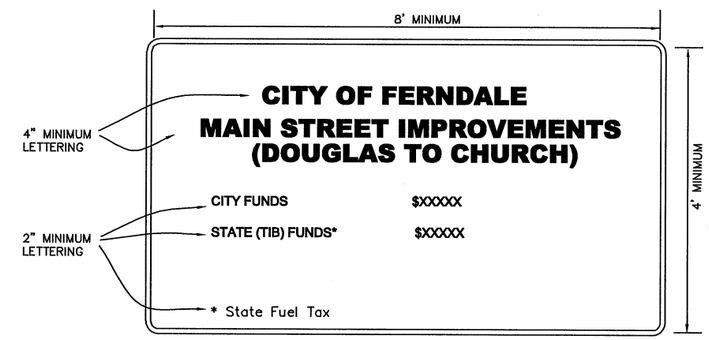
DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H
VA	6	5/8	3	4	1 1/2	3	2 1/4

COLORS

LEGEND – WHITE (REFL)
BACKGROUND – GREEN (REFL)

TYPICAL SIGN DETAIL

NTS



PROJECT SIGNS (2 EACH)

NTS

NOTES:
1) LOCATION AS APPROVED BY ENGINEER
2) SIGN SHALL BE MOUNTED ON (2) 4"x4" TREATED POSTS

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) SIGN SCHEDULE	JOB# / DWG 08018.P2b 08018_SP1 SCALE H: n/a V: n/a	DATE 3-30-12 SHEET 39

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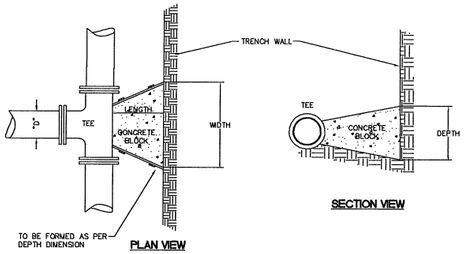
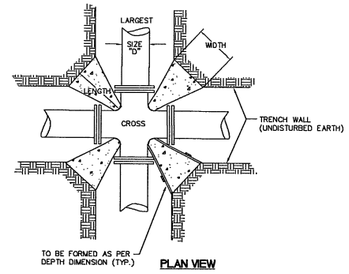


"D"	WIDTH	DEPTH	LENGTH	VOL.
6"	1'-6"	1'-6"	12"	3.0
8"	2'-0"	2'-0"	12"	4.5
10"	2'-6"	2'-6"	12"	7.0
12"	3'-0"	3'-0"	18"	14.0

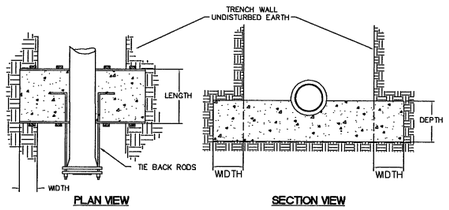
VOL. = Approx. Volume of Blocking Material Required in cu. ft.

SOIL BEARING CAPACITY 1500 PSF MINIMUM
100 P.S.I. OPERATING PRESSURE



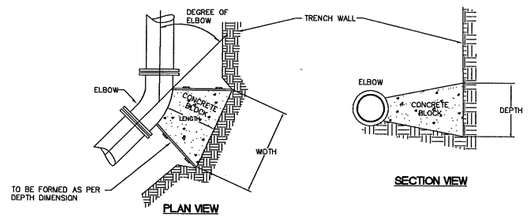
"D"	WIDTH	DEPTH	LENGTH	VOL.	X4 blocks/joint
6"	1'-0"	1'-0"	12"	0.63	2.50 cu ft
8"	1'-3"	1'-3"	12"	1.00	4.01 cu ft
10"	1'-6"	1'-6"	12"	1.63	6.50 cu ft
12"	1'-9"	1'-9"	18"	3.05	12.19 cu ft

VOL. = Approx. Volume of Blocking Material Required in cu. ft.



"D"	WIDTH	DEPTH	LENGTH	*VOL.	# OF RODS	ROD DIA.
6"	1'-6"	1'-6"	12"	7.5	2	1/2"
8"	2'-0"	2'-0"	18"	20.0	2	5/8"
10"	2'-6"	2'-6"	24"	37.5	2	3/4"
12"	2'-9"	2'-9"	24"	44.0	4	3/4"

*VOL. = Approx. Volume of Blocking Material Required in cu. ft.
RODS: A36 STEEL MINIMUM

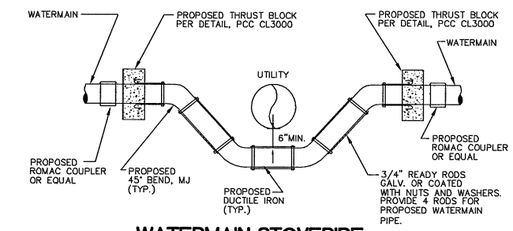


SIZE	LENGTH	11 1/4"			22 1/2"			45°			90°		
		WIDTH	DEPTH	VOL.	WIDTH	DEPTH	VOL.	WIDTH	DEPTH	VOL.	WIDTH	DEPTH	VOL.
6"	12"	1'-0"	1'-0"	0.63	1'-0"	1'-0"	0.63	1'-6"	1'-6"	1.25	2'-3"	1'-6"	1.88
8"	12"	1'-3"	1'-3"	1.00	1'-3"	1'-3"	1.00	1'-9"	1'-9"	1.75	3'-0"	2'-0"	3.33
10"	12"	1'-9"	1'-6"	1.72	1'-9"	1'-6"	1.72	2'-3"	2'-3"	2.88	3'-6"	2'-6"	4.861
12"	18"	2'-0"	1'-9"	3.48	2'-0"	1'-9"	3.48	2'-9"	2'-6"	5.98	4'-0"	3'-0"	10.00

VOL. = Approx. Volume of Blocking Material Required in cu. ft.

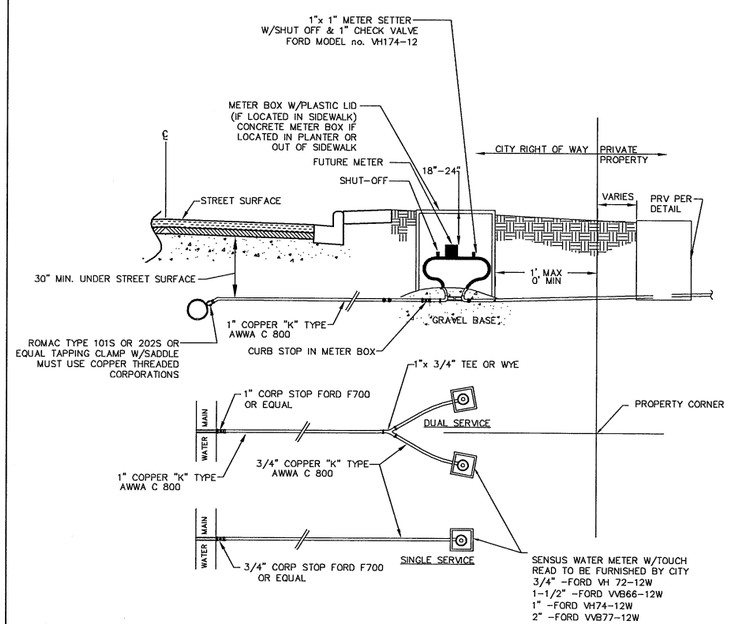
THRUST BLOCKING

NTS



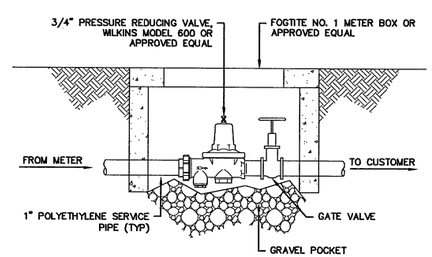
WATERMAIN STOVEPIPE

NTS



WATER SERVICE CONNECTION DETAIL

NTS

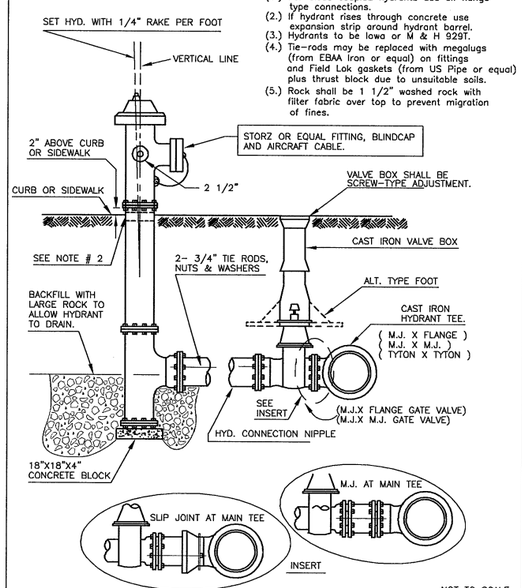


PRV DETAIL

NTS

NOTES

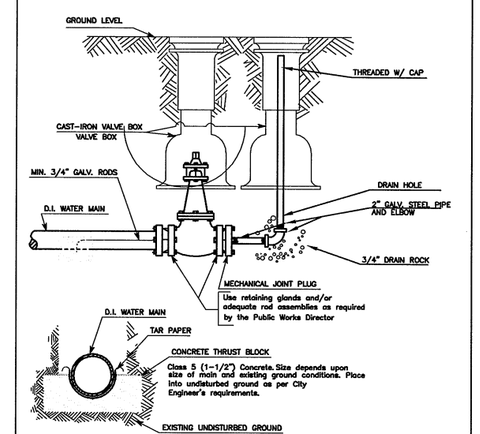
(1.) For close coupled hydrants use all flange type connections.
(2.) If hydrant rises through concrete use expansion strip around hydrant barrel.
(3.) Hydrants to be Iowa or M & H 929T.
(4.) Tie-rods may be replaced with megalugs (from EBAA Iron or equal) on fittings and Field Lok gaskets (from US Pipe or equal) plus thrust block due to unsuitable soils.
(5.) Rock shall be 1 1/2" washed rock with filter fabric over top to prevent migration of fines.



NOT TO SCALE

APPROVED	CITY OF FERNDALE	DRAWING
Public Works Director Date	FIRE HYDRANT ASSEMBLY	W-1

JULY 2001

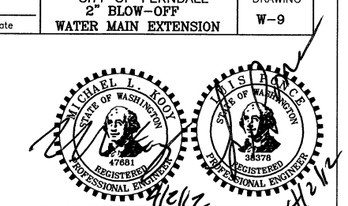


2" blow-off to be used where the main will be extended in the future. For mains with no further extention, refer to 2" blowoff, non-extendable main.

NOT TO SCALE

APPROVED	CITY OF FERNDALE	DRAWING
Public Works Director Date	2" BLOW-OFF WATER MAIN EXTENSION	W-9

JULY 2001



DESIGNED BY	MLK/LP
DRAWN BY	LMC
CHECKED BY	LP

R&E

REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
PO BOX 936
FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
WATER DETAIL SHEET

JOB# / DWG		DATE
08018.P2b	P2B-DET	3-30-12
SCALE H: n/a	V: n/a	SHEET 40

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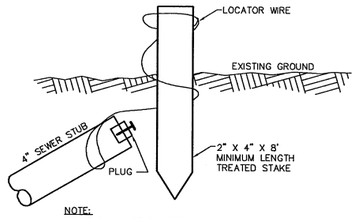
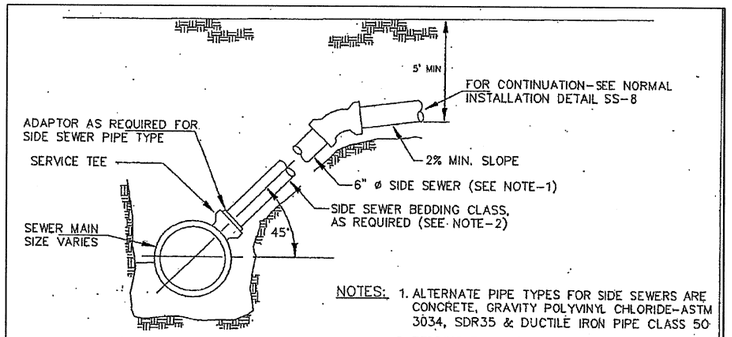


NOTE:
STAKE SHALL BE PAINTED GREEN WITH DEPTH TO INVERT LABELED IN WHITE PAINT.

SEWER SERVICE STAKE

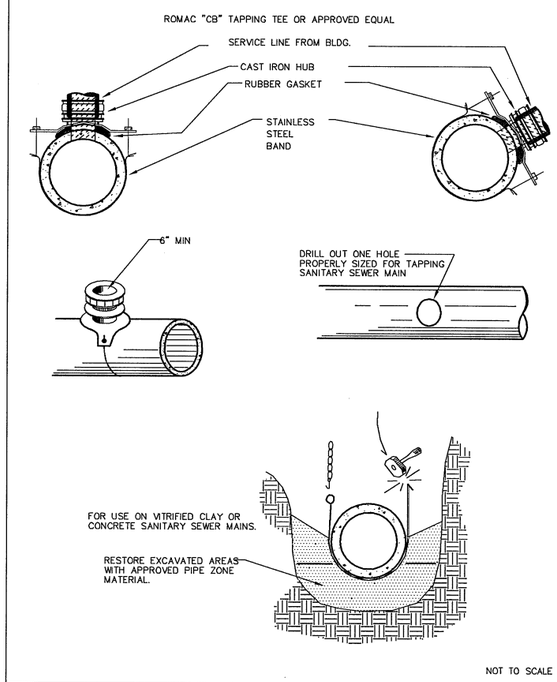
NTS



NOTES:
1. ALTERNATE PIPE TYPES FOR SIDE SEWERS ARE CONCRETE, GRAVITY POLYVINYL CHLORIDE-ASTM 3034, SDR35 & DUCTILE IRON PIPE CLASS 50
2. BEDDING FOR CONCRETE SHALL BE CLASS-B
BEDDING FOR POLYVINYL SHALL BE CLASS-B
BEDDING FOR DUCTILE IRON SHALL BE CLASS-B

15" AND LARGER SEWER INSTALLATION

NTS



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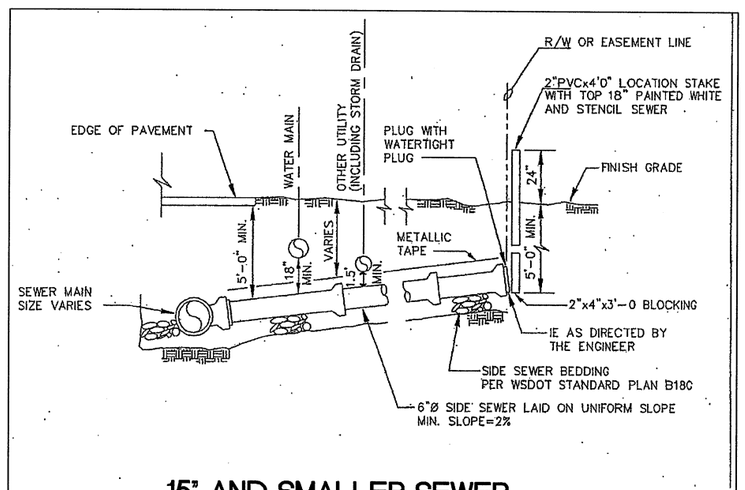
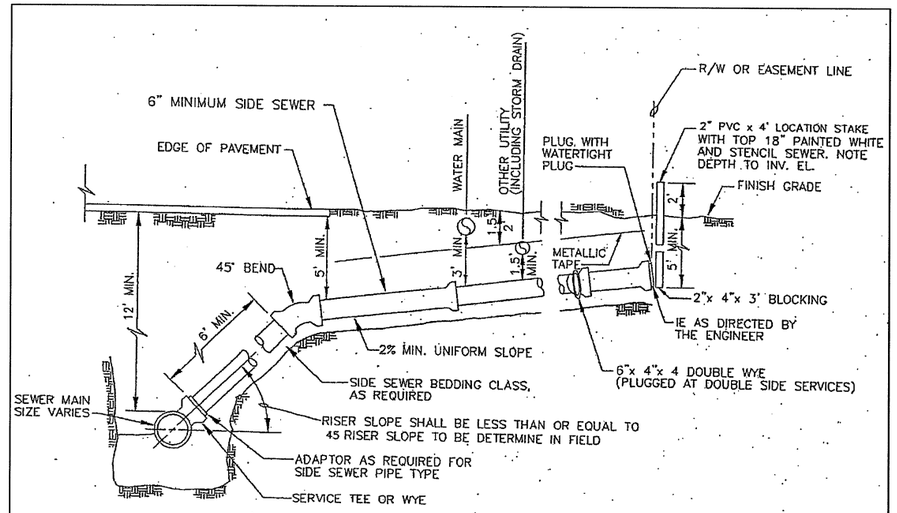


15" AND SMALLER SEWER INSTALLATION

NTS



SANITARY SEWER SIDE SERVICE INSTALLATION, DEEP MAINS

NTS

APPROVED		CITY OF FERNDALE SANITARY SEWER BANDED TAPPING TEE	DRAWING SS-12
Public Works Director	Date		

JULY 2001

DESIGNED BY MLK/LP	DRAWN BY LMC	CHECKED BY LP	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) SEWER DETAIL SHEET	JOB# / DWG 08018.P2b P2B-DET	DATE 3-30-12
										SCALE H: n/a V: n/a	SHEET 41

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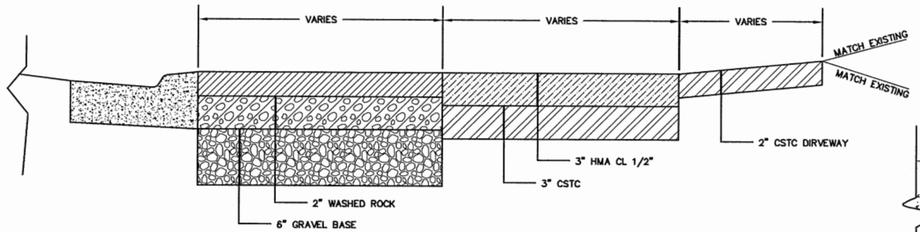
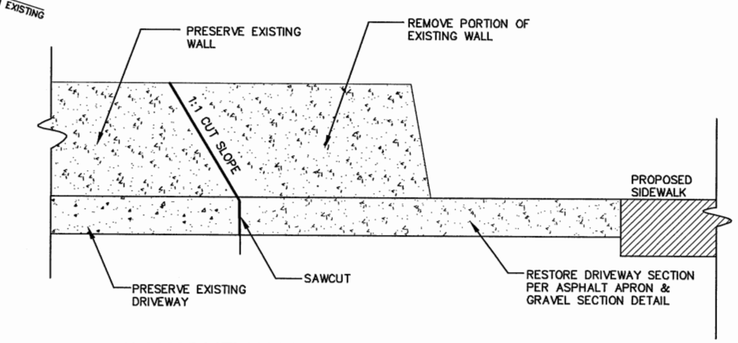


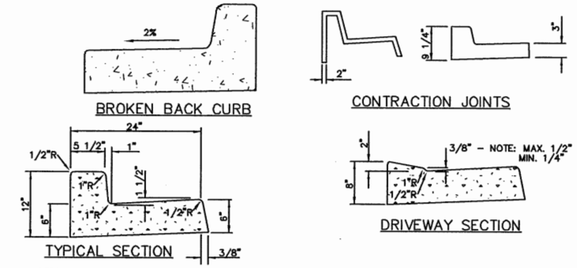
PROPOSED ASPHALT APRON AND GRAVEL SECTION

NTS



SAWCUT WALL TYPICAL DETAIL STA 9+83 L

NTS



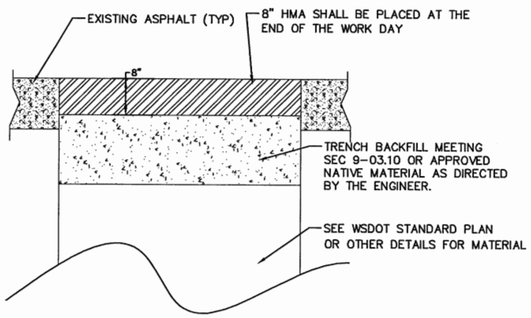
NOTES:
CONTRACTION JOINTS OF ONE OF THE TYPES SHOWN ABOVE TO BE PLACED 10' C/C. JOINTS COMPLETELY SEVER THE STRUCTURE TO THE POINTS SHOWN. JOINTS MAY BE MADE BY INSERTING MIN. 3/16" BITUMINOUS FILLER DUMMY JOINTS. JOINTS SHALL BE CLEANED AND EDGED

3/4" EXPANSION JOINTS TO BE PLACED AT DRIVEWAY SECTIONS, CURB RETURNS, CURB RAMPS AND COLD JOINTS OR A MAX. OF 80' C/C. EXPANSION JOINTS SHALL PROTRUDE 1" BELOW THE BOTTOM OF THE GUTTER.

CURB DRAINS SHALL BE CONSTRUCTED OF 2" PVC PIPE OR OTHER MATERIAL SUBJECT TO APPROVAL OF THE ENGINEER, CUT TO LENGTH TO PASS FROM THE BACK OF CURB THROUGH THE CURB TO THE FACE OF THE CURB AT THE GUTTER LINE. SPACING WILL BE MAXIMUM OF 50 FEET, CENTER TO CENTER, AND/OR EACH SIDE OF THE DRIVEWAYS AND AT SUCH LOCATIONS AS DESIGNATED BY THE ENGINEER.

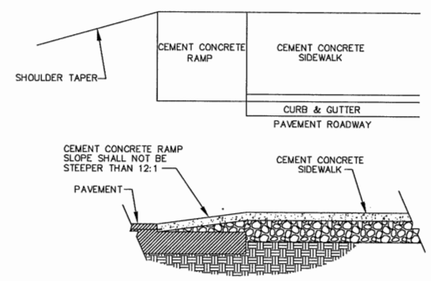
CURB AND GUTTER DETAILS

NTS



TRENCH TYPICAL SECTION

NTS



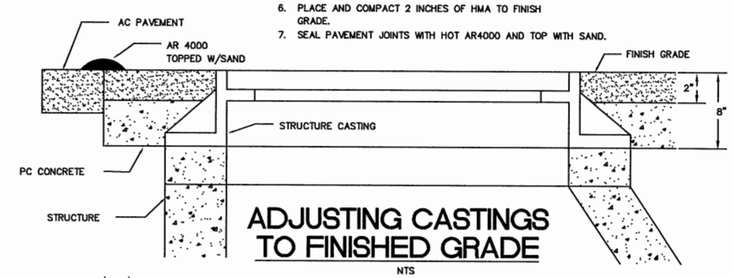
CEMENT CONCRETE SIDEWALK RAMP DETAIL

NTS

NOTES:

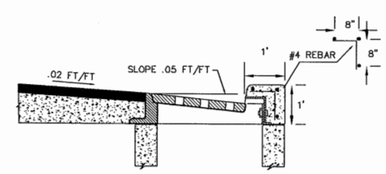
ALL FRAMES, COVERS AND VALVE BOXES SHALL BE ADJUSTED TO FINISHED GRADE AFTER THE FINAL LIFT OF PAVING HAS BEEN COMPLETED. THE FOLLOWING PROCEDURE SHALL BE USED:

1. CUT THE ASPHALT IN AN EVEN CIRCLE AROUND THE STRUCTURE CASTING TO BE ADJUSTED.
2. REMOVE THE FILL MATERIAL WITHIN THE CUT PAVEMENT AREA TO 8 INCHES MIN. BELOW FINISH GRADE.
3. PLACE THE CASTING AT FINISH GRADE.
4. PLACE PORTLAND CEMENT CONCRETE TO WITHIN THE TOP 2 INCHES OF FINISH GRADE.
5. APPLY TACK TO THE STRUCTURE CASTING, CUT PAVEMENT, AND PC CONCRETE.
6. PLACE AND COMPACT 2 INCHES OF HMA TO FINISH GRADE.
7. SEAL PAVEMENT JOINTS WITH HOT AR4000 AND TOP WITH SAND.

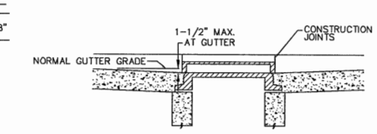


ADJUSTING CASTINGS TO FINISHED GRADE

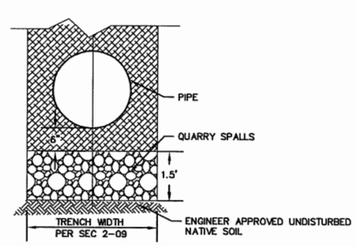
NTS



SECTION A-A

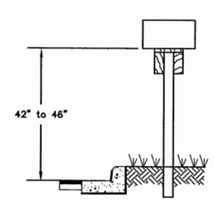


SECTION B-B



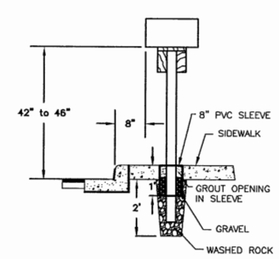
REMOVAL OF UNSUITABLE MATERIAL INCLUDING HAUL, TYPICAL SECTION

NTS



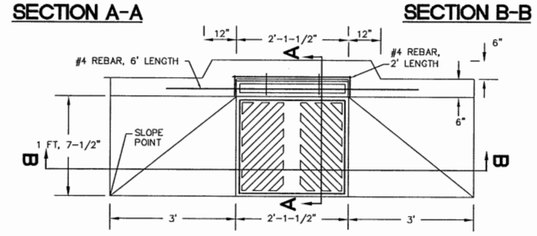
MAILBOX POST DETAIL IN PLANTER

NTS



MAILBOX POST DETAIL IN SIDEWALK

NTS



THRU CURB INLET DETAIL

NTS

MICHAEL L. KOOI — STATE OF WASHINGTON — 47681 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

LIN DEPAGE — STATE OF WASHINGTON — 38378 — REGISTERED PROFESSIONAL ENGINEER — 4/2/12

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) MISC DETAIL SHEET	JOB# / DWG 08018.P2b P2B-DET SCALE H: n/a V: n/a	DATE 3-30-12 SHEET 42

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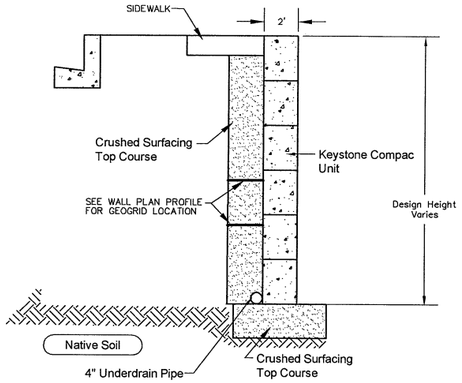
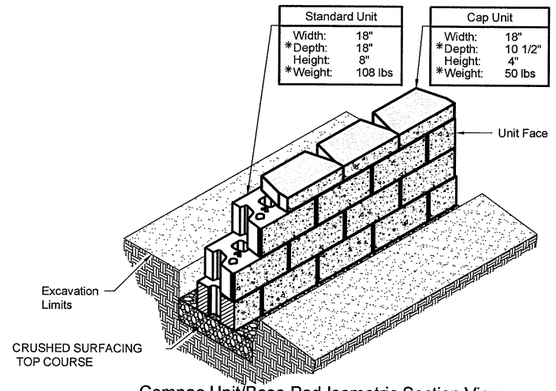


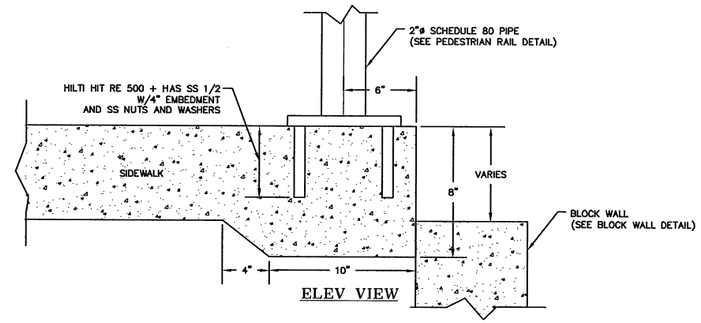
Typical Reinforced Wall Section

Compac Unit



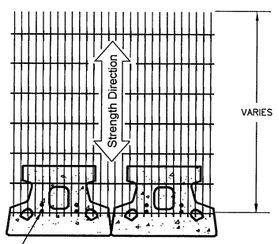
Compac Unit/Base Pad Isometric Section View

* Dimensions & Weight May Vary by Region



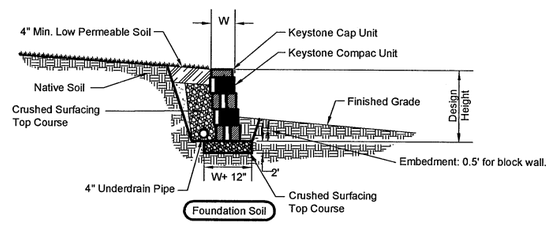
STA 4+50 TO 6+35, R
CEMENT CONCRETE SIDEWALK
THICKENED EDGE

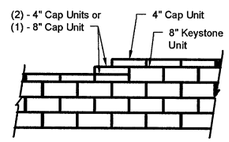
NTS



Geogrid is to be Placed on Level Backfill and Extended Over the 1/2" x 5-1/4" Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

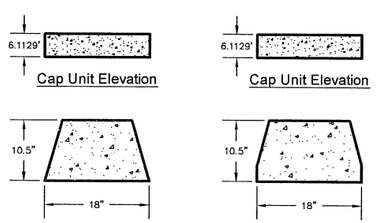
Grid & Pin Connection





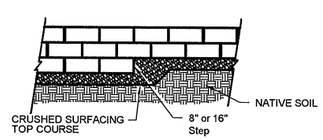
Note:
1. Secure all cap units with Keystone Kapseal or equal.

Top of Block Wall Steps

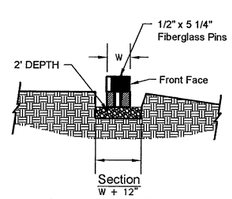


Universal Cap Unit Option
* Dimensions & Availability Will Vary by Region

Straight Split Cap Unit Option
* Dimensions & Availability Will Vary by Region



Elevation
TYPICAL BLOCK WALL



Leveling Pad Detail

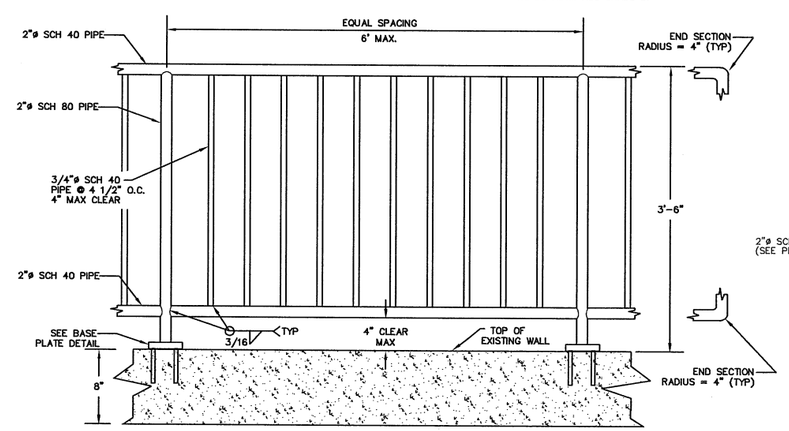
BLOCK WALL RETAINING WALL

NTS

TYPICAL BLOCK WALL

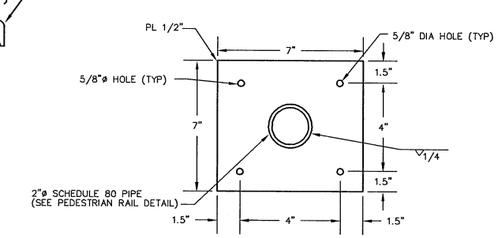
NTS

NOTES:
1. HANDRAIL SHALL BE HOT DIPPED GALVANIZED.
2. COLD GALVANIZED COMPOUND SHALL BE APPLIED TO ALL FIELD WELDS AND BLEMISHES.
3. PIPES SHALL BE ASTM A53 GRADE B.



PEDESTRIAN RAIL DETAIL

NTS



BASE PLATE

NTS

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) BLOCK WALL DETAIL SHEET	JOB# / DWG 08018.P2b P2B-DET SCALE H:n/a V:n/a DATE 3-30-12 SHEET 43

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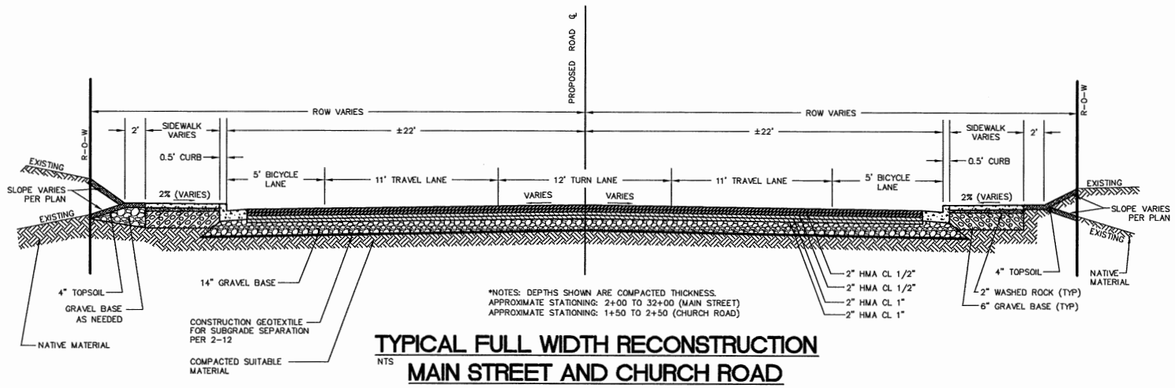
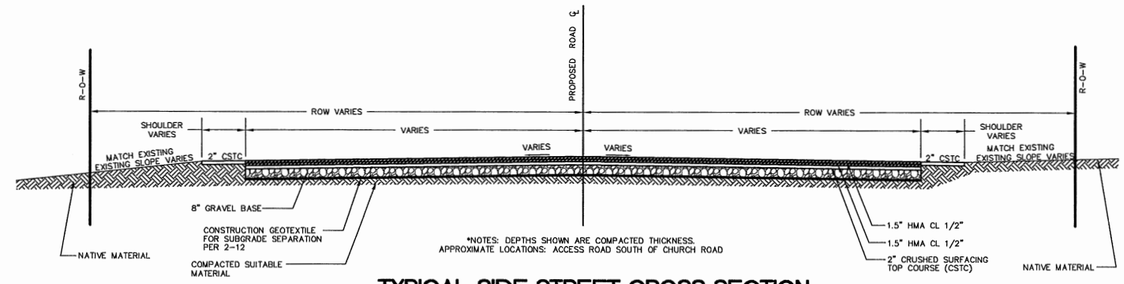
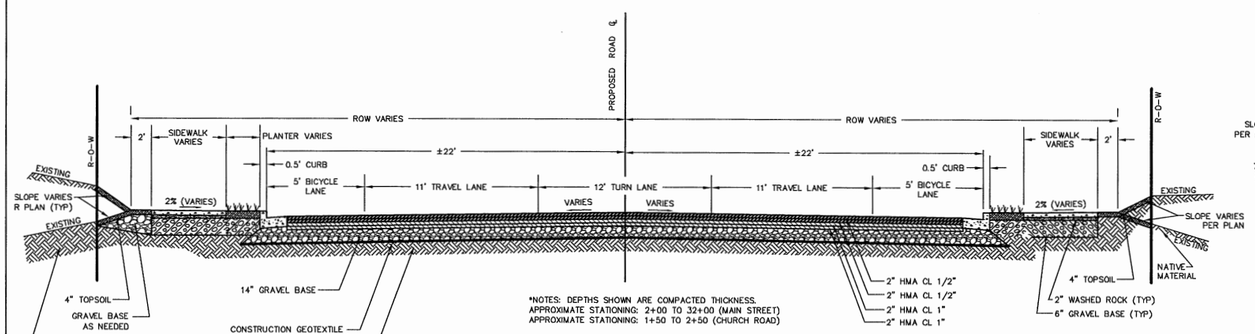


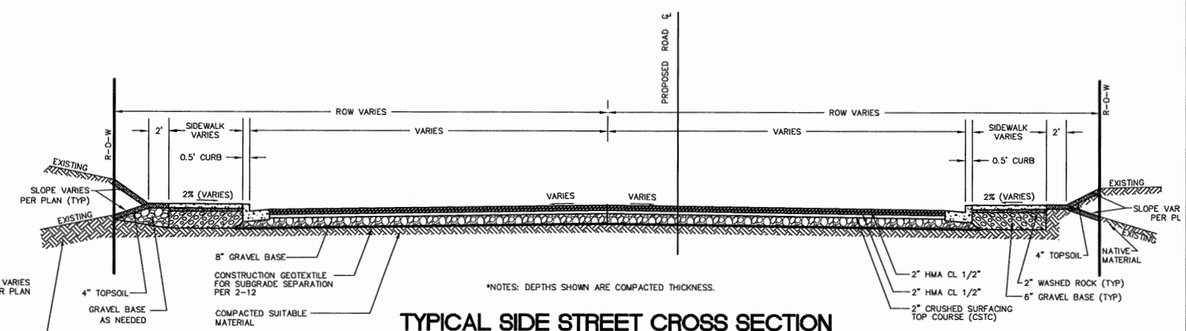
TYPICAL FULL WIDTH RECONSTRUCTION
NTS
MAIN STREET AND CHURCH ROAD
CROSS SECTION
NO PLANTER



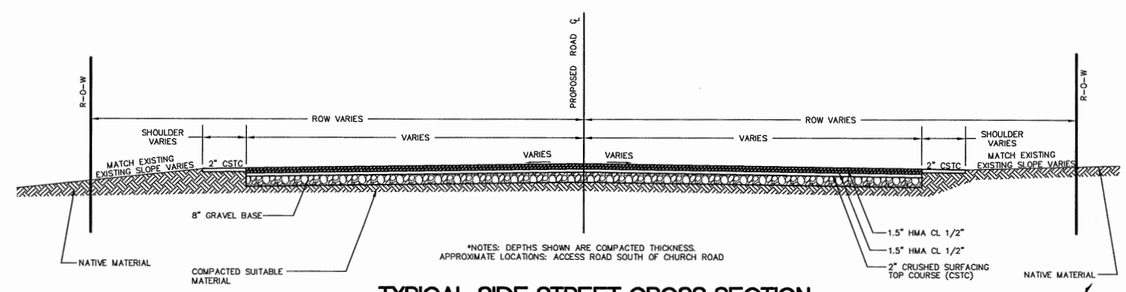
TYPICAL SIDE STREET CROSS SECTION
NTS
NO SIDEWALK



TYPICAL FULL WIDTH RECONSTRUCTION
NTS
MAIN STREET AND CHURCH ROAD
CROSS SECTION
WITH PLANTER



TYPICAL SIDE STREET CROSS SECTION
NTS
WITH SIDEWALK



TYPICAL SIDE STREET CROSS SECTION
FERNDALE MOBILE VILLAGE
NTS

DESIGNED BY MLK/LP DRAWN BY LMC CHECKED BY LP	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) TYPICAL SECTIONS	JOB# / DWG 08018.P2b P2B-DET SCALE H: n/a V: n/a	DATE 3-30-12 SHEET 44

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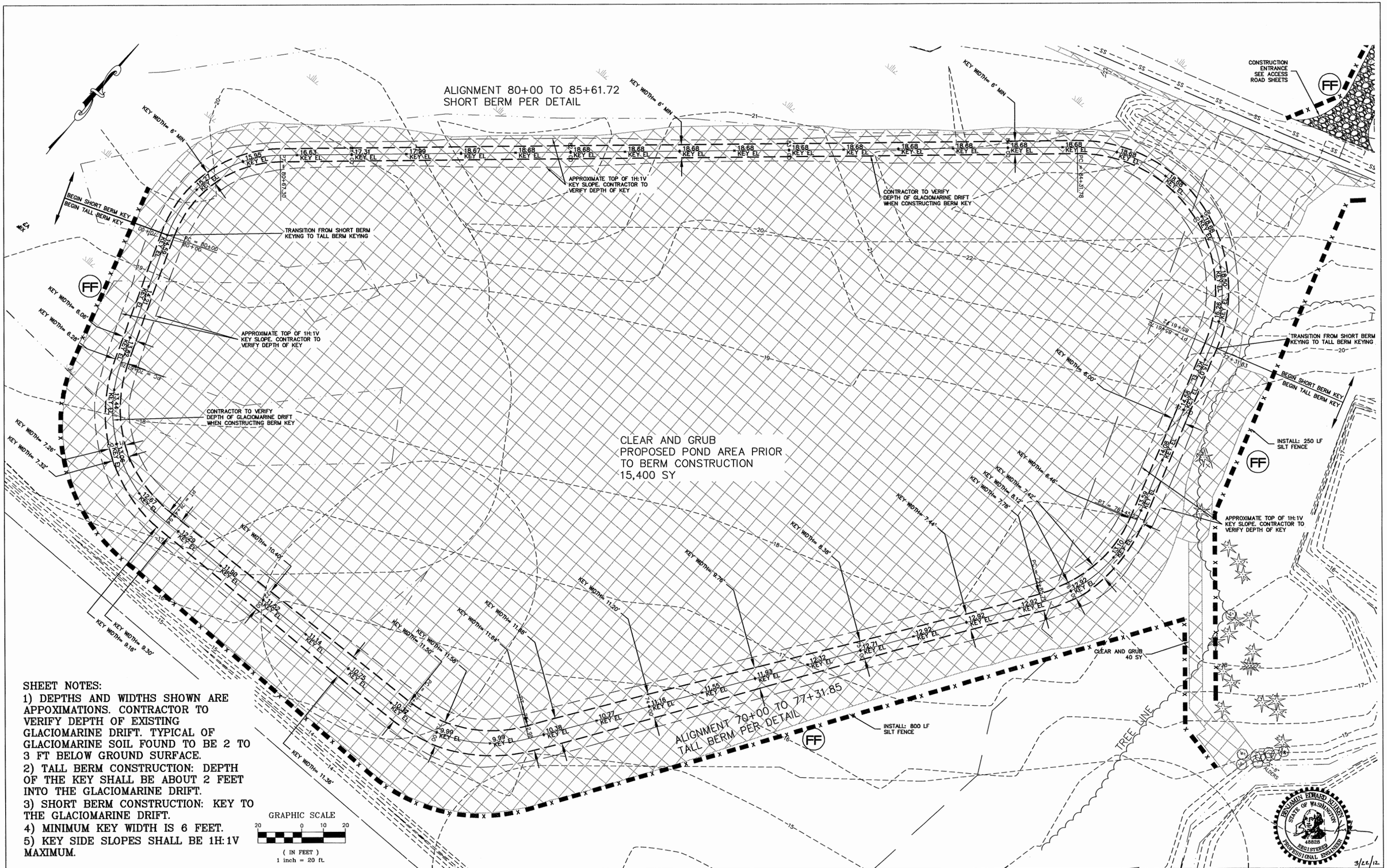

SHEET NOTES:

1) DEPTHS AND WIDTHS SHOWN ARE APPOXIMATIONS. CONTRACTOR TO VERIFY DEPTH OF EXISTING GLACIOMARINE DRIFT. TYPICAL OF GLACIOMARINE SOIL FOUND TO BE 2 TO 3 FT BELOW GROUND SURFACE.
2) TALL BERM CONSTRUCTION: DEPTH OF THE KEY SHALL BE ABOUT 2 FEET INTO THE GLACIOMARINE DRIFT.
3) SHORT BERM CONSTRUCTION: KEY TO THE GLACIOMARINE DRIFT.
4) MINIMUM KEY WIDTH IS 6 FEET.
5) KEY SIDE SLOPES SHALL BE 1H:1V MAXIMUM.

DESIGNED BY BEK DRAWN BY BEK CHECKED BY	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND TESC AND DEMO PLAN

JOB# / DWG		DATE
11022	SP1	3-30-12
SCALE H:1"=20' V:n/a		SHEET 45

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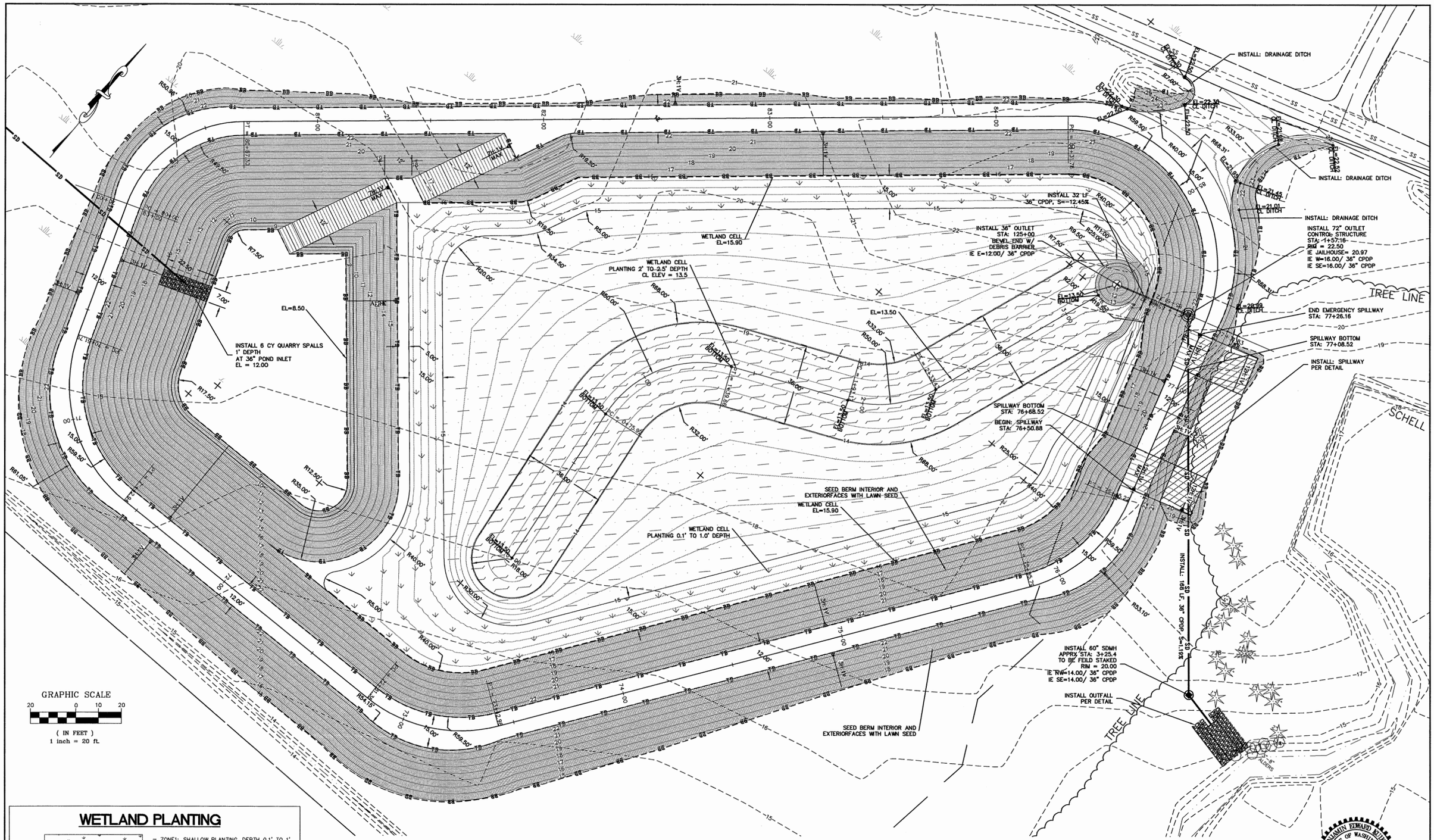

DESIGNED BY BEK DRAWN BY BEK CHECKED BY	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND GRADING PLAN	JOB# / DWG 11022 SP1 SCALE H:1"=20' V:n/a DATE 3-30-12 SHEET 46

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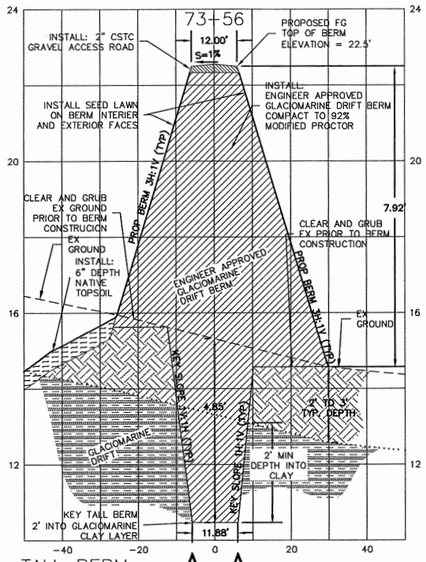
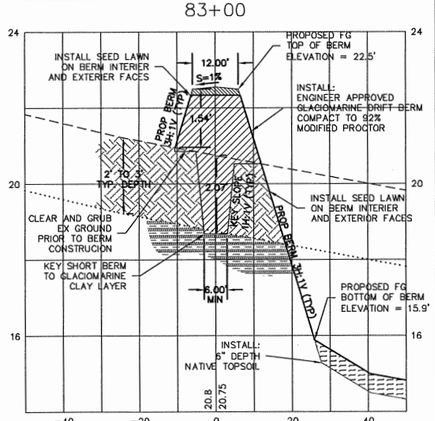


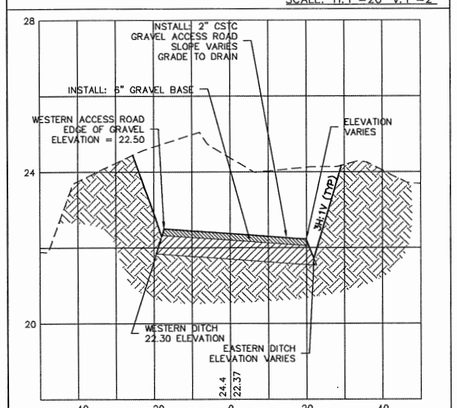
TALL BERM A–A

SCALE: H:1"=20' V:1"=2'



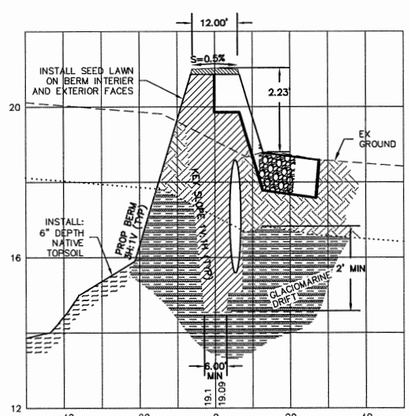
SHORT BERM B–B

SCALE: H:1"=20' V:1"=2'



ACCESS RD D–D

SCALE: H:1"=20' V:1"=2'



SPILLWAY C–C

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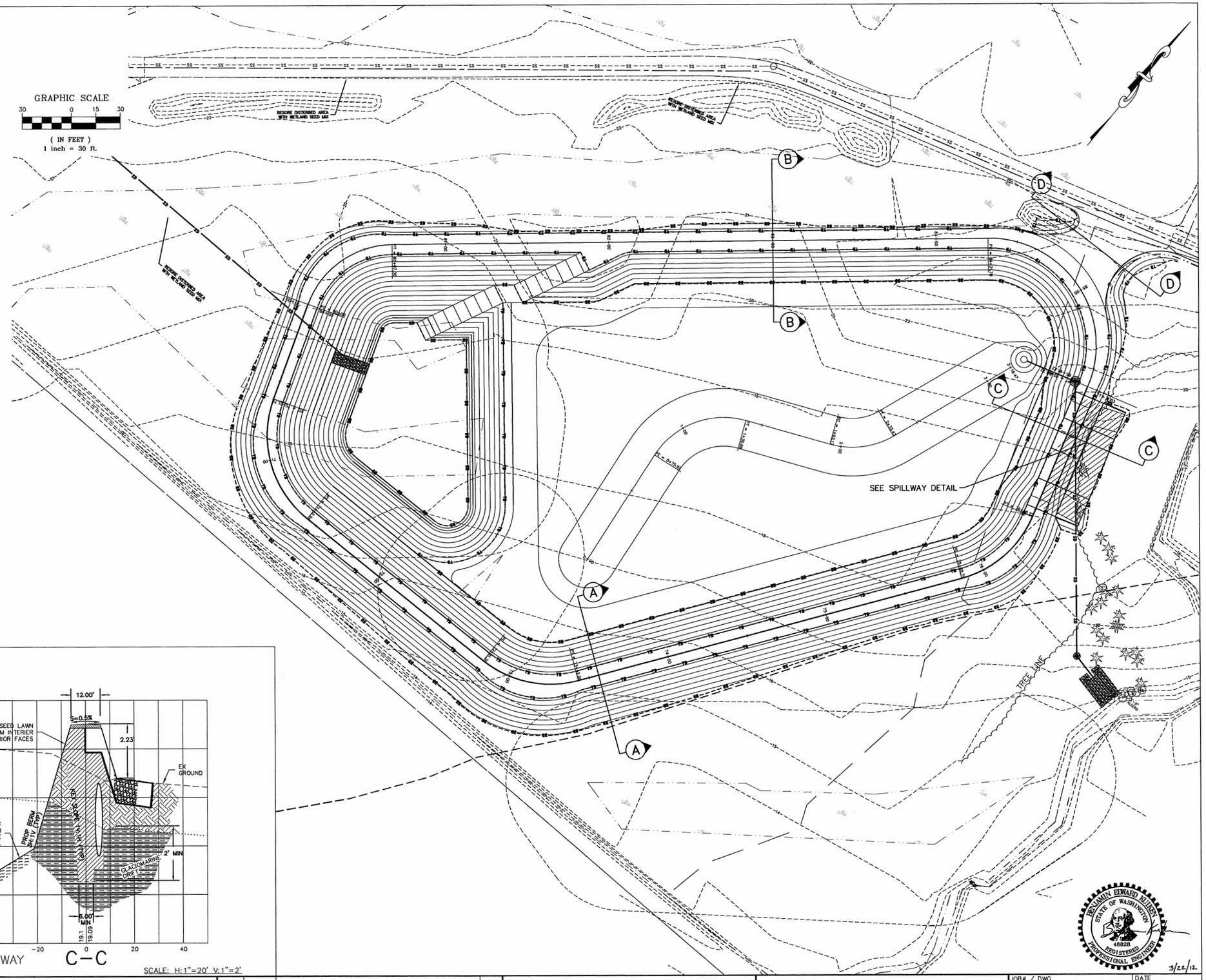

BENJAMIN EDWARD KIMBER
STATE OF WASHINGTON
48828
REGISTERED PROFESSIONAL ENGINEER

3/22/12

DESIGNED BY BEK	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS			CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND CROSS SECTIONS	JOB# / DWG 11022 SP1
DRAWN BY BEK		PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407					SCALE H:1"=30' V:n/a
CHECKED BY			NO.	DATE	REVISION	BY	

DATE 3-30-12

SHEET 47

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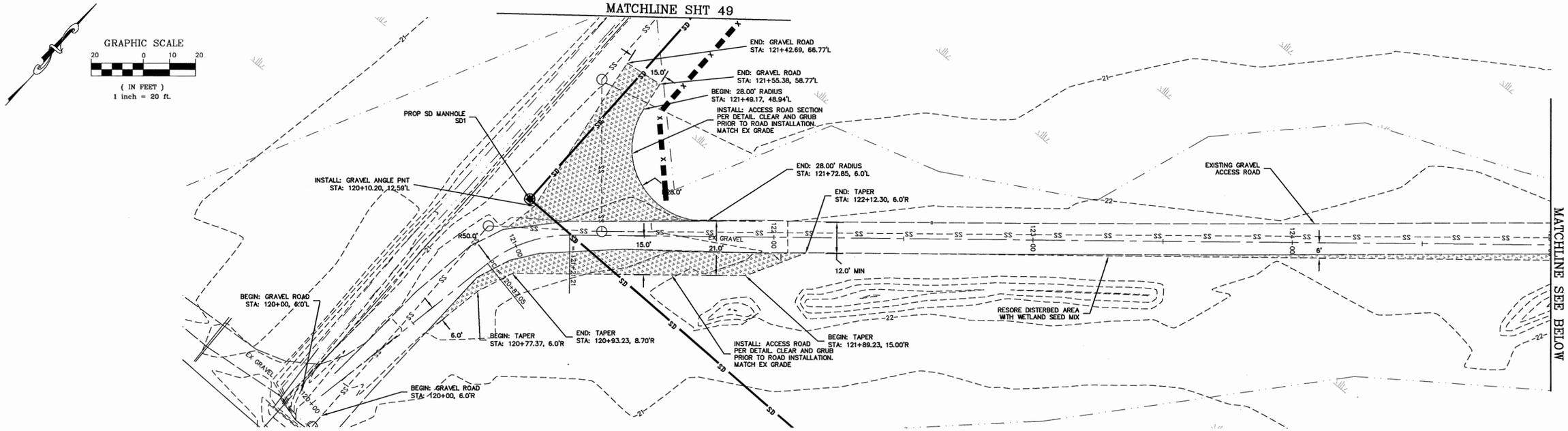

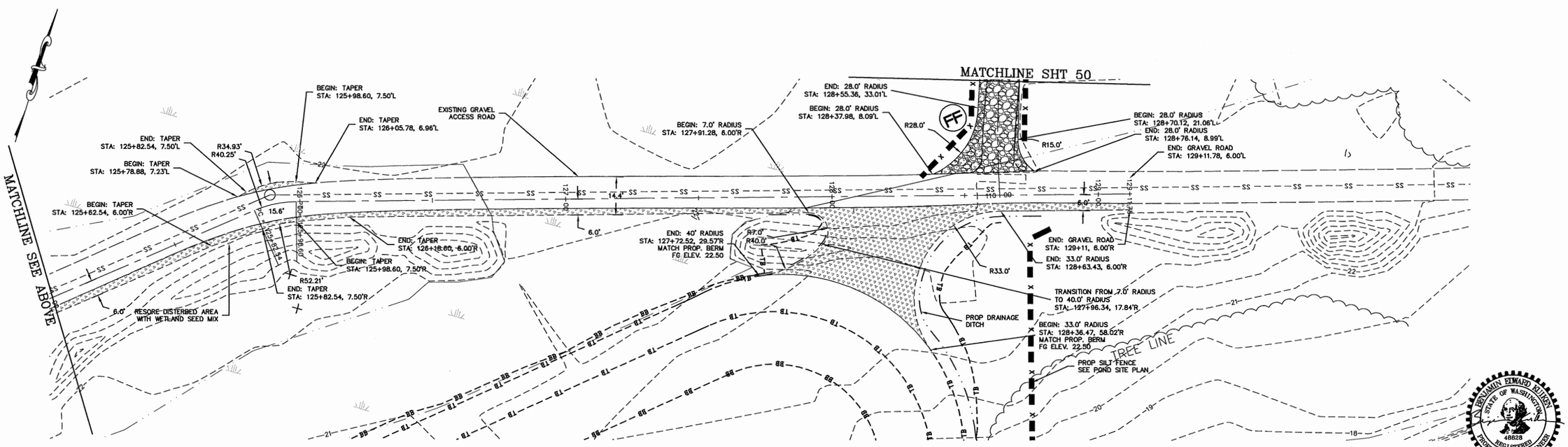

DESIGNED BY BEK DRAWN BY BEK CHECKED BY	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND ACCESS ROAD

JOB# / DWG		DATE
11022	SP1	3-30-12
SCALE H: 1"=20' V: 1"=2'		SHEET 48

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GRAPHIC SCALE

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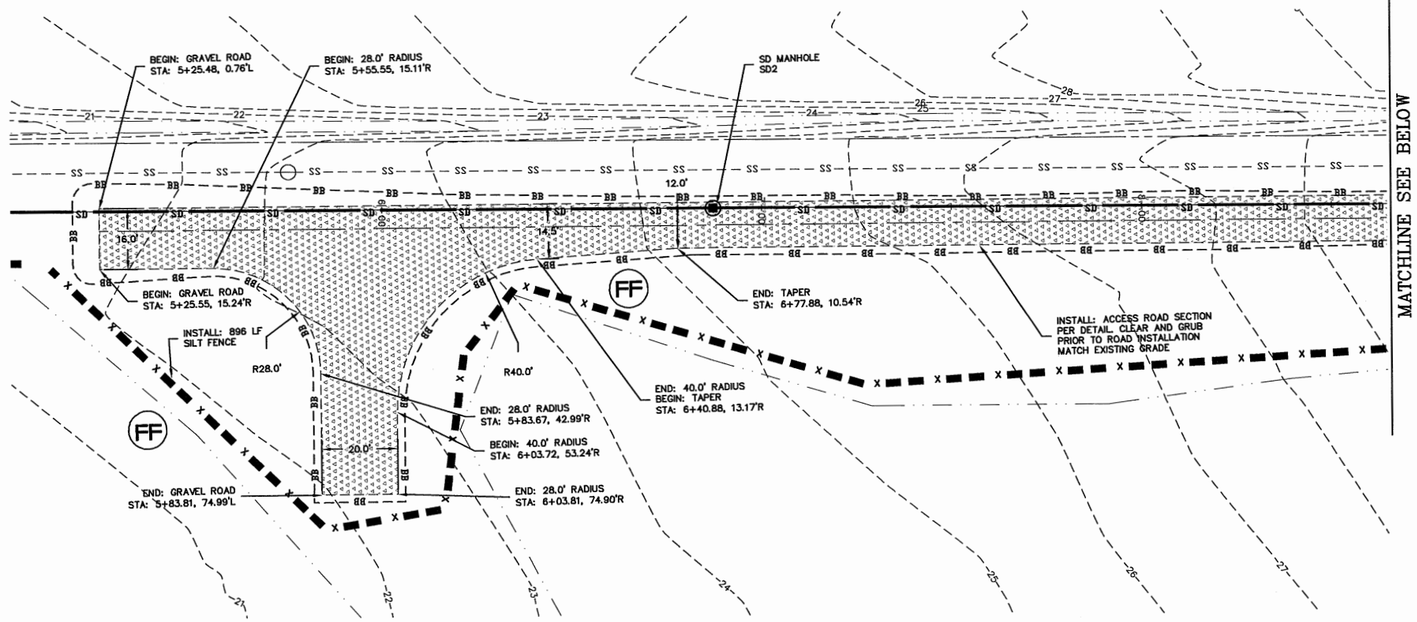
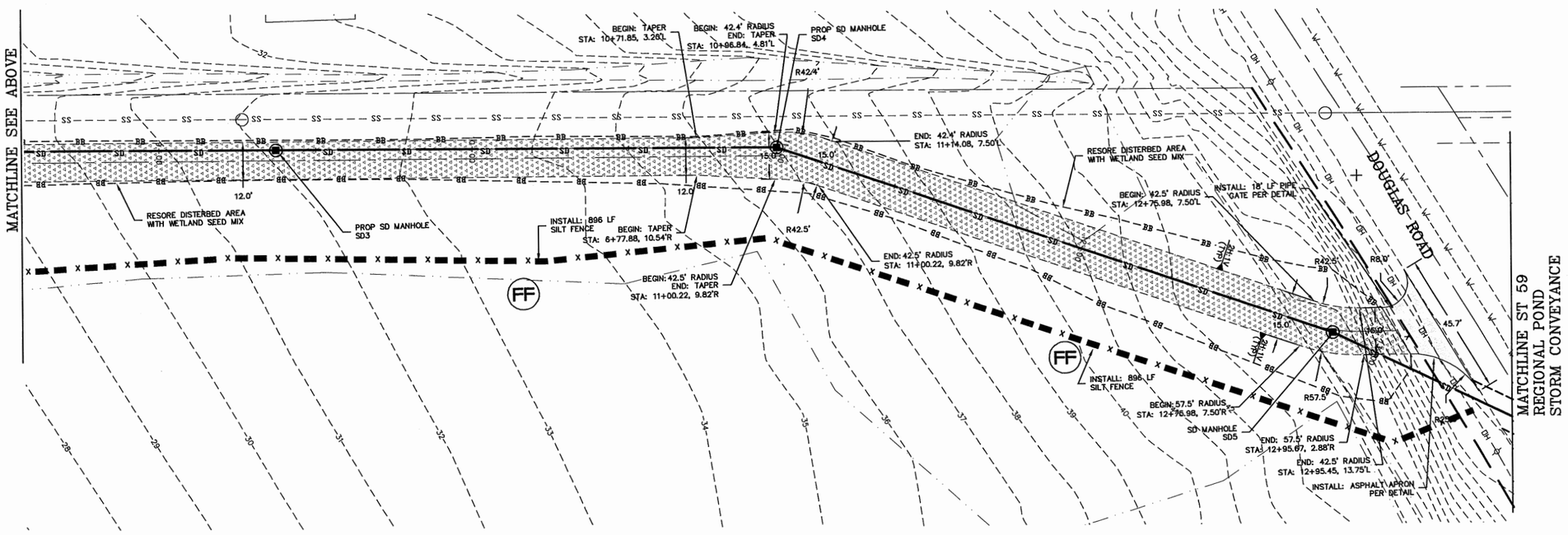
(IN FEET)
1 inch = 20 ft.





BENJAMIN EDWARD ALLEN
STATE OF WASHINGTON
48828
REGISTERED
PROFESSIONAL ENGINEER
3/22/12

DESIGNED BY BEK DRAWN BY BEK CHECKED BY	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
REGIONAL POND ACCESS ROAD

JOB# / DWG	DATE
11022 SP1	3-30-12
SCALE H: 1"=20' V: 1"=2'	SHEET 49

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GRAPHIC SCALE

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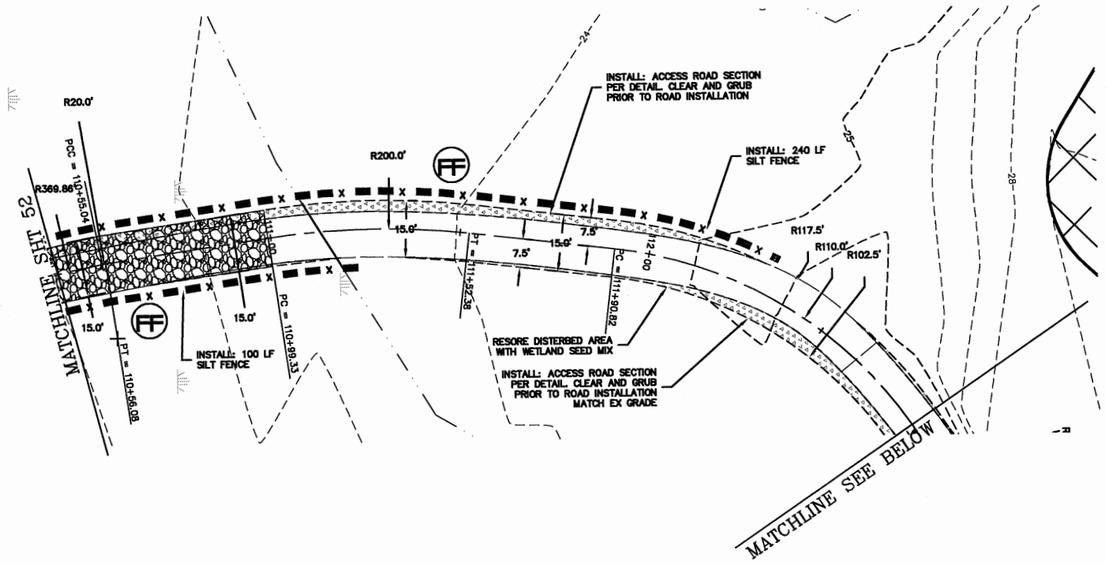

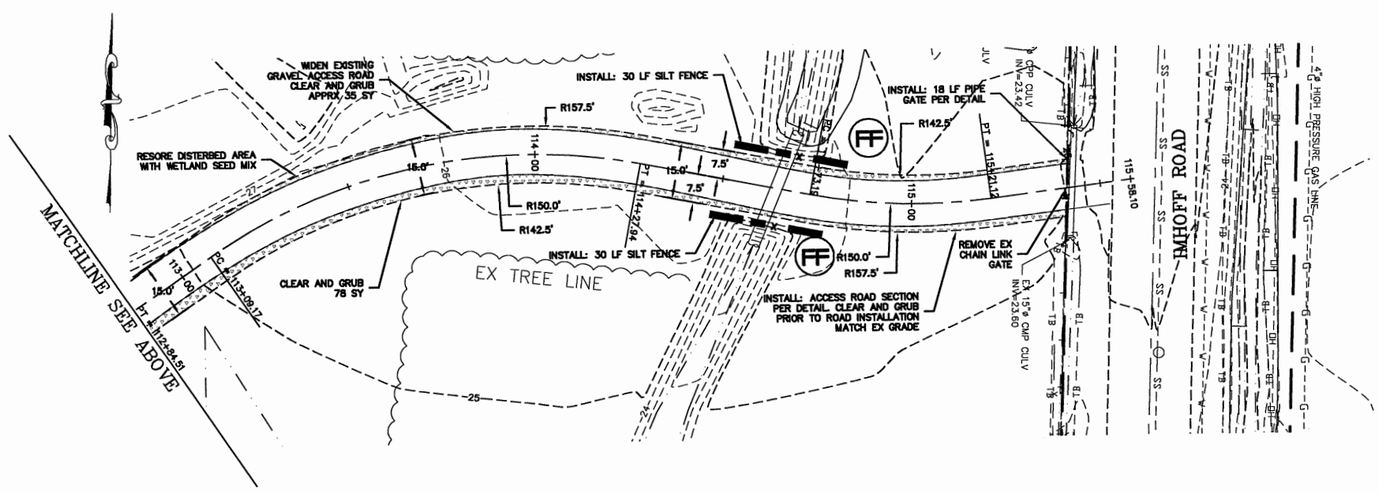

DESIGNED BY BEK DRAWN BY BEK CHECKED BY	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO.	DATE	REVISION	BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND ACCESS ROAD

JOB# / DWG		DATE
11022	SP1	3-30-12
SCALE H: 1"=20' V: 1"=2'		SHEET 50

BENJAMIN EDWARD KOMOSKI STATE OF WASHINGTON 48828 REGISTERED PROFESSIONAL ENGINEER 3/22/12

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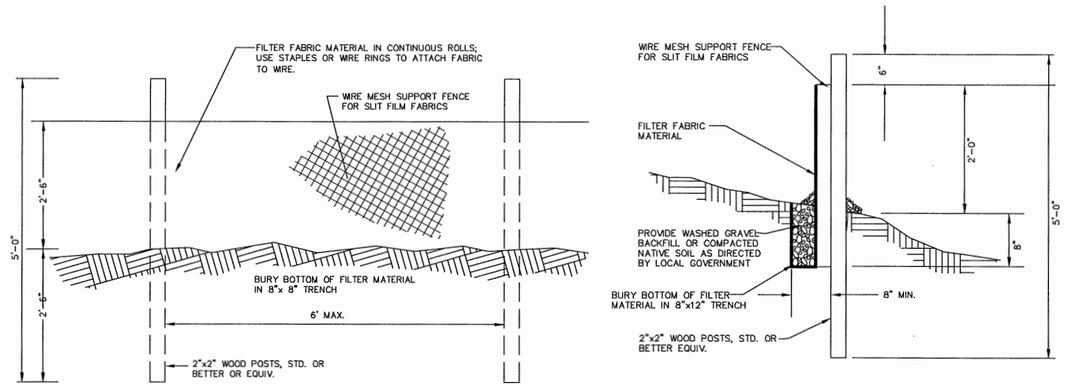
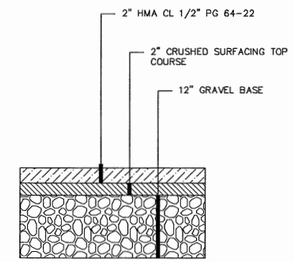


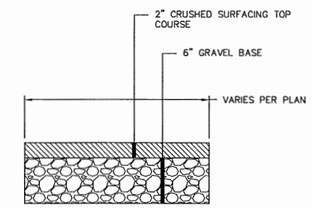
FILTER FABRIC FENCE DETAIL

NTS



ASPHALT APPRON SECTION

NTS



ACCESS ROAD SECTION

NTS

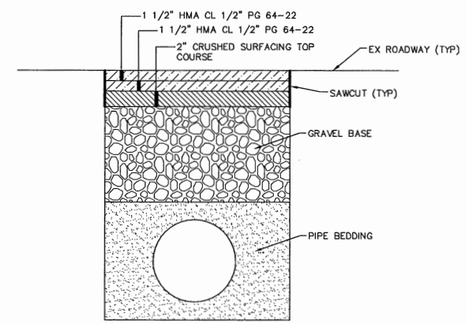
ERISION CONTROL LEGEND

WASHINGTON STATE DEPT. OF ECOLOGY

SYMBOL	BEST MANAGEMENT PRACTICES (BMP) REF.: STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, 2005
CE	BMP E2.10 STABILIZED CONSTRUCTION ENTRANCE AND TIRE WASH SEE DETAIL THIS SHEET
FF	BMP E3.10 FILTER FENCE – SEE DETAIL THIS SHEET
IP	BMP E3.30 INLET PROTECTION – PLACE SEDIMENT FILTER AROUND OR OVER CATCH BASINS
WC	WATTLE CHECKDAM PER WSDOT STD PLAN I-50.20-00

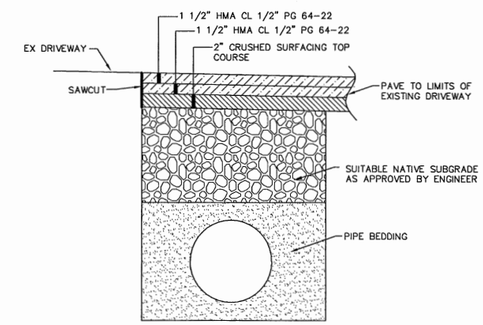
GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
2. ALL CUT AND FILL SLOPES SHALL BE SEEDED AND FERTILIZED FOR EROSION CONTROL. CONTRACTOR SHALL BE RESPONSIBLE FOR SLOPE EROSION UNTIL VEGETATION IS FIRMLY ESTABLISHED.
3. CONTRACTOR SHALL INFORM THE ENGINEER AND OBTAIN APPROVAL FROM THE ENGINEER OF ANY PROPOSED CHANGES IN PLAN PRIOR TO CONSTRUCTION OF THAT CHANGE. CONTRACTOR SHALL KEEP RECORD OF DEVIATIONS AND FORWARD TO THE ENGINEER.
4. CONTRACTOR WILL HAVE A WATER TRUCK AVAILABLE ON SITE AT ALL TIMES. CONTRACTOR WILL WATER SURFACES OFTEN ENOUGH TO ABATE DUST AS APPROVED BY THE ENGINEER. WATERING WILL INCLUDE WEEKENDS AND HOLIDAYS.
5. THE CONTRACTOR WILL CONSTRUCT A CONSTRUCTION ENTRANCE AS SHOWN IN THE CONSTRUCTION ENTRANCE DETAIL ON THIS SHEET AT EACH ENTRANCE FROM A STAGING OR WORK AREA ONTO A PUBLIC ROAD OR NON-STAGING OR NON-WORKING AREA.
6. ALL DISTURBED AREAS SHALL BE HYDROSEEDED. GRASS SEEDING SHALL BE BROADCAST IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE SEDIMENTATION AND EROSION CONTROL MEASURES AS SHOWN.
8. THE CONSTRUCTED EROSION CONTROL AND SEDIMENTATION PLAN SHALL BE APPROVED BY THE ENGINEER PRIOR TO PERFORMING ANY SITE GRADING OR CLEARING.
9. MAINTENANCE AND OPERATION OF THE EROSION CONTROL AND SEDIMENTATION SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE SEDIMENTATION AND EROSION CONTROL MEASURES.
10. ANY VEGETATION NOT IN THE CONSTRUCTION AREA SHALL BE LEFT UNDISTURBED.
11. ALL CLEARING LIMITS SHALL BE VISIBLY MARKED PRIOR TO CLEARING.
12. ALL STORM DRAIN FACILITIES WITHIN THE PROJECT BOUNDARY, OR WHICH ARE IMPACTED BY THE PROJECT ARE TO BE CLEARED OF SEDIMENT AND DEBRIS PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
13. THIS PLAN REPRESENTS THE MINIMUM REQUIREMENTS FOR THIS PROJECT. ADDITIONAL EROSION CONTROL MAY BE REQUIRED BY THE ENGINEER AS ARE FOUND NECESSARY.
14. THE TEMPORARY EROSION CONTROL SYSTEMS SHALL BE INSTALLED PRIOR TO ALL OTHER SITE CONSTRUCTION.



DOUGLAS ROAD PAVEMENT REPAIR

NTS



FERNDALE MOBILE VILLAGE PAVEMENT REPAIR

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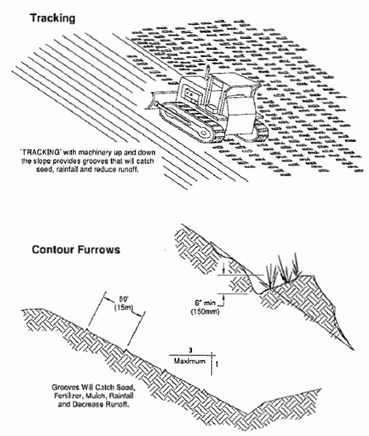

SURFACE ROUGHENING

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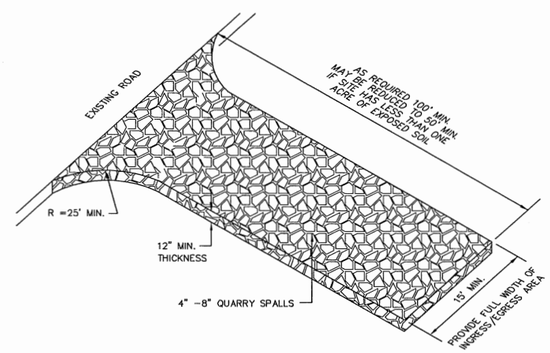

STABILIZED CONSTRUCTION ENTRANCE

NTS

BENJAMIN EDWARD KLIMKY
STATE OF WASHINGTON
46828
REGISTERED PROFESSIONAL ENGINEER
4/2/12

DESIGNED BY	BEK
DRAWN BY	BEK
CHECKED BY	

R&E
REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
PO BOX 936
FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
REGIONAL POND DETAIL SHEET

JOB# / DWG	11022 DET.2	DATE	3-30-12
SCALE	H: n/a V: n/a	SHEET	51

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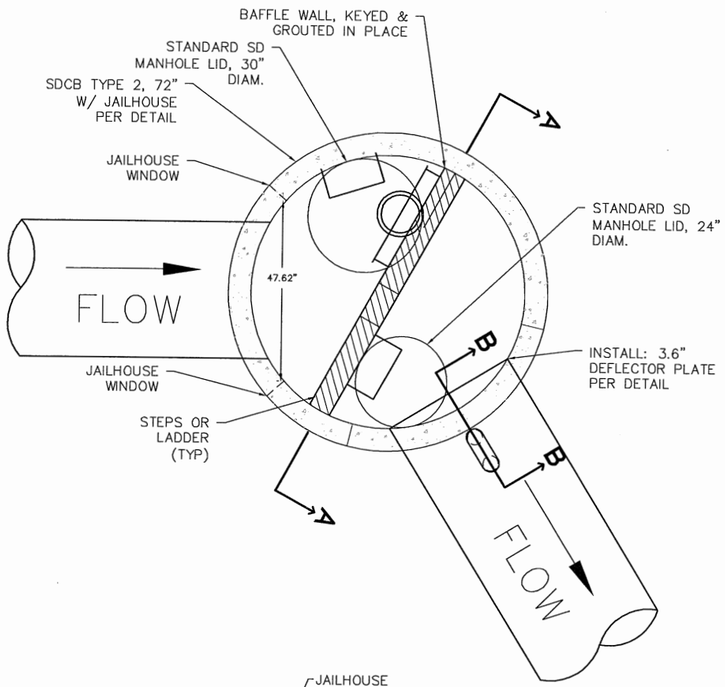
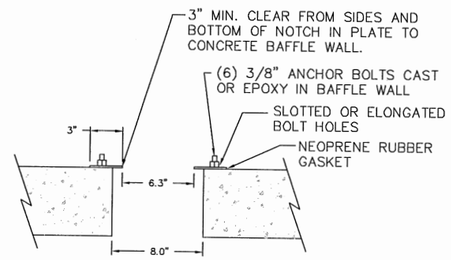


NOTES:

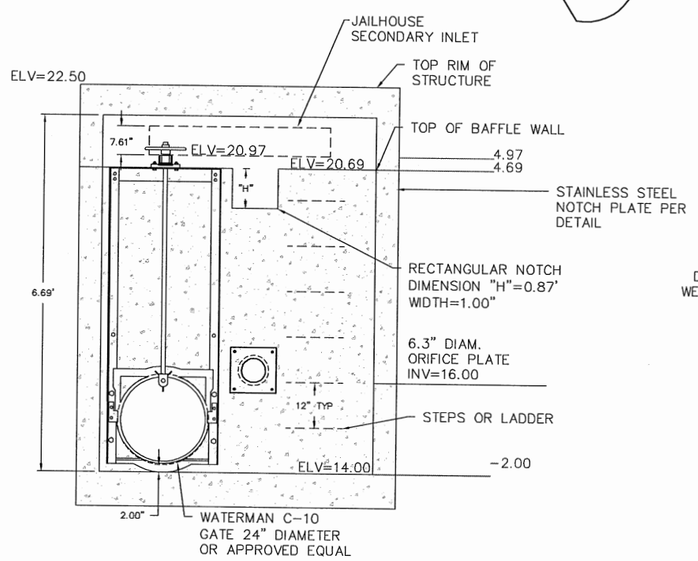
1. THE CONTRACTOR SHAL PROVIDE SHOP DRAWINGS OF THE STRUCTURE AND BAFFLE WALL WITH DIMENSIONS SHOWN TO ASSURE LADDER CLEARANCE AND ACCESS AND SHEAR GATE OPERATION.
2. RESTRICTOR PLATE WITH ORIFICE OPENINGS SHALL BE CUT ROUND & SMOOTH.
3. ORIFICE PLATE WITH OPENING SHALL BE STAINLESS STEEL MINIMUM 10 GAGE THICKNESS.
4. PAINTED 24" SLUICE GATE SHALL WATERMAN C-10 AND INSTALLED TO THE MANUFACTURES RECOMMENDATIONS.

   ALL SLUICE GATE BOLTS SHALL BE STAINLESS STEEL.

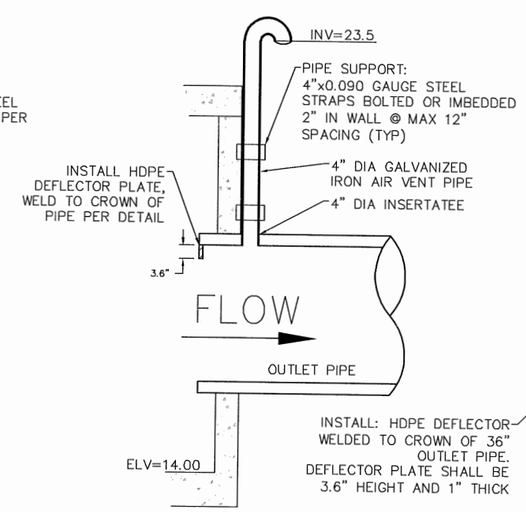
   ALTERNATIVE SLUICE GATE DESIGNS ARE ACCEPTABLE IF APPROVED BY THE ENGINEER.
5. BAFFLE WALL SHALL HAVE #4 BAR AT 12" SPACING EACH WAY WITH 3" CLEAR FROM ALL SURFACES OF BAFFLE WALL. THE BAFFLE WALL SHALL BE PRECAST CL4000 CONCRETE & SHALL BE KEYED & GROUTED IN PLACE TO SEAL BAFFLE WALL TO STRUCTURE.



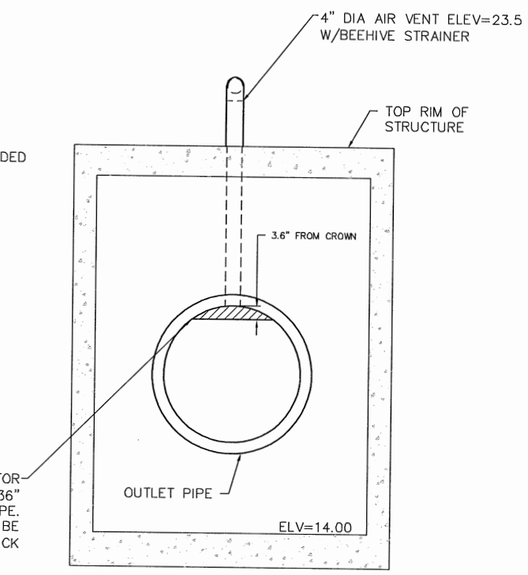
BOTTOM ORIFICE PLATE DETAIL



BAFFLE WALL SECTION A-A



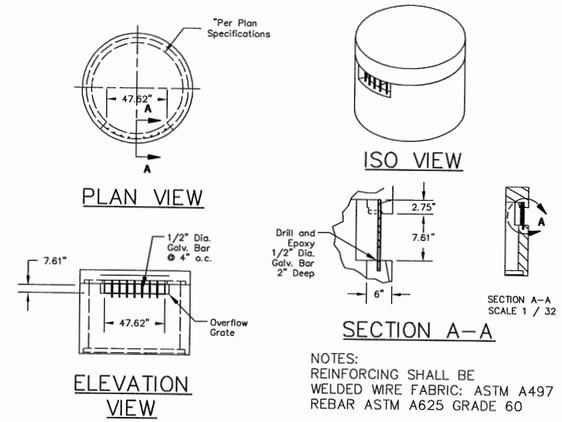
AIR VENT SECTION B-B



DEFLECTOR PLATE DETAIL

POND OUTLET CONTROL STRUCTURE

NTS



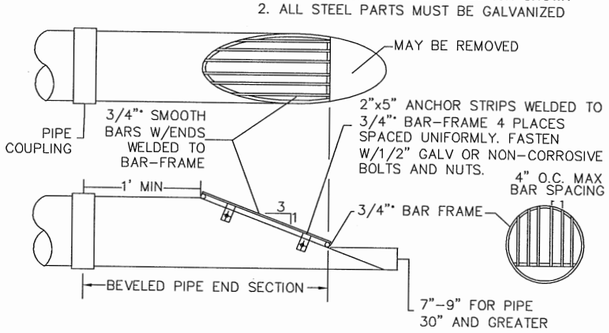
NOTES:
REINFORCING SHALL BE
WELDED WIRE FABRIC: ASTM A497
REBAR ASTM A625 GRADE 60

JAILHOUSE WINDOW INLET

NTS

NOTES:

1. CMP OR LCPE PIPE END-SECTION SHOWN
2. ALL STEEL PARTS MUST BE GALVANIZED



DEBRIS BARRIER

NTS

DESIGNED BY BEK DRAWN BY BEK CHECKED BY	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND DETAIL SHEET	JOB# / DWG 11022 DET.2 SCALE H:n/a V:n/a	DATE 3-30-12 SHEET 52

BENJAMIN EDWARD JOHNSON STATE OF WASHINGTON 48828 REGISTERED PROFESSIONAL ENGINEER 3/22/12

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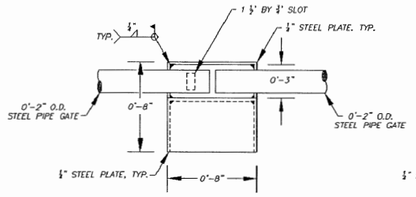
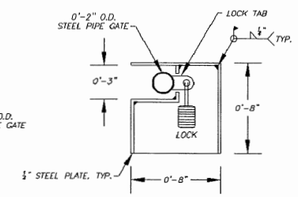


LOCK BOX ELEVATION VIEW (TOWARD PROJECT)

SCALE: 2 FEET = 1"

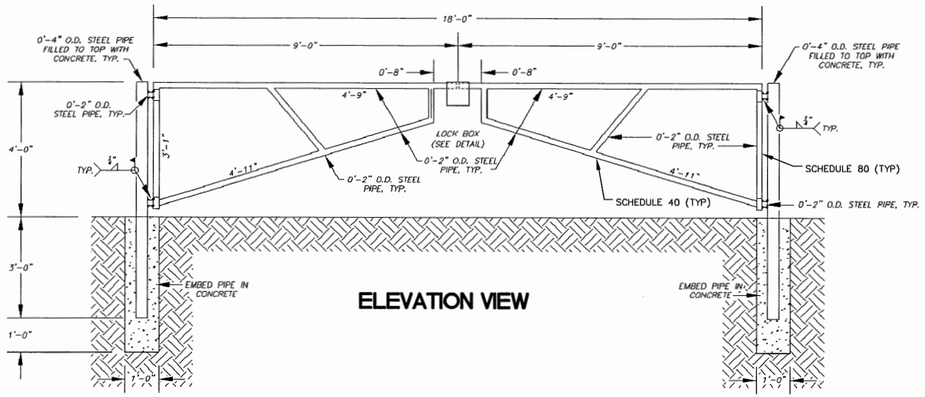


LOCK BOX SECTION VIEW

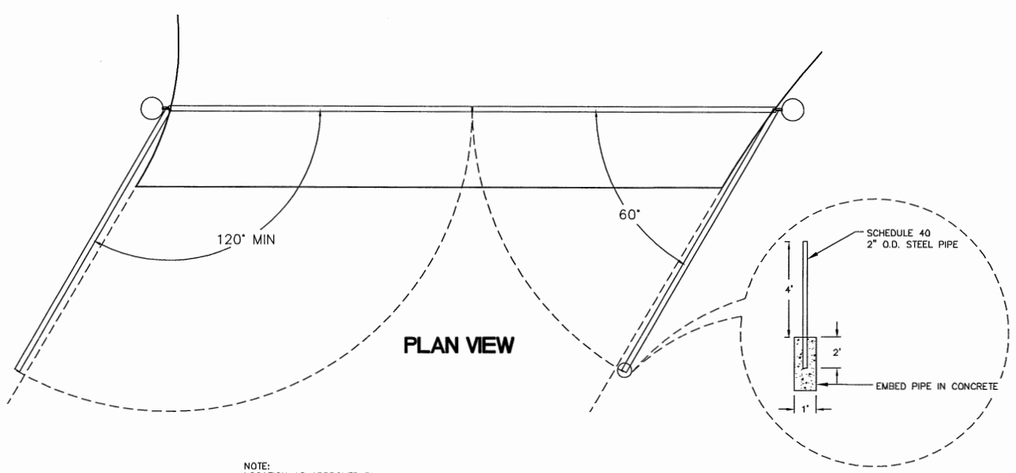
SCALE: 2 FEET = 1"

NOTES:

1. CONCRETE CAN BE FIELD MIXED SACRETE AND POURED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
2. THE LOCK BOX SHALL BE CONSTRUCTED OF ½" STEEL PLATE WELDED AT ALL JOINTS. THE BOTTOM OF THE LOCK BOX IS OPEN TO ALLOW LOCKING AND UNLOCKING OF THE GATE.
3. THE LOCK TAB SHALL BE CONSTRUCTED OF ½" STEEL PLATE WITH ROUNDED GROUND SMOOTH EDGES AND WELDED TO THE HORIZONTAL MEMBER OF THE PIPE GATE AS SHOWN. A SLOT SHALL BE CUT IN THE LOCK BOX TO ALLOW INSERTION OF THE TAB AND LOCKING OF THE GATE.



ELEVATION VIEW



PLAN VIEW

NOTE:
LOCATION AS APPROVED BY ENGINEER

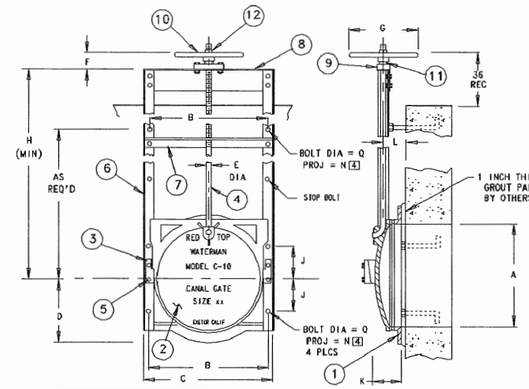
PIPE GATE

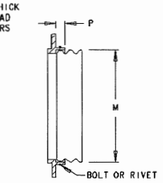
NTS

C-10 CANAL GATE

NOTES:

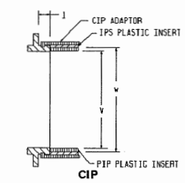
1. TYPE 2 lubricated ball bearing lift used on 48" and larger gates.
2. Applies to spigot back gate only. Optional spigot, shown in separate detail.
3. All dimensions are also applicable for model CL-10 & CM-10 gates.
4. Add grout pad thickness to anchor bolt projection.
5. Type 3E 2:1 lift used, mounted to dual headrail.



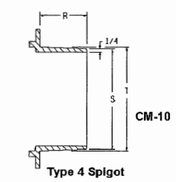


Corrugated Pipe Attached to Spigot Back Frame

PARTS LIST		
No.	Name	Qty.
1	Frame	1
2	Cover	1
3	Wedge (Right & Left)	1 ea.
4	Stem	1
5	Wedge Bolts	4
6	Guide Rail	2
7	Stem Support	A/R
8	Head Rail	1
9	Lift Collar	1
10	Handwheel	1
11	Lift Nut	1
12	Limit Nut	1



CIP



CM-10

Type 4 Spigot

A	B	C	D	E	F	G	H	J	K	L	M 2	N	P 2	Q	R	S	T	V	W
6	8	9¼	4	¼	2¼	10	24	3	3½	2¼	7	3½	2¼	½	-	-	-	6.160	6.645
8	10	12	4¾	¼	2¼	10	24	3	3¾	2½	9	3½	2¼	½	4	7 9/16	8	8.180	8.645
10	12	13¾	6	¼	2¼	10	24	3½	3¾	2½	11	3¼	2¼	½	3¼	9¼	10	10.220	10.770
12	14	15¾	7	¼	2¼	10	24	4	3½	3	13	4	2¼	½	4	11¾	12	12.270	12.780
14	16	17¾	8	¼	2¼	10	27	4¼	3¾	3¼	15	4	2¼	½	-	-	-	-	-
16	17	18¾	8¾	¼	2¼	10	30	5	4½	3½	16	4	2½	½	4	14½	15	-	-
18	18¼	20¾	9¾	¼	2¼	10	32	5½	4½	3½	17	4½	2¼	½	-	-	-	-	-
18	21	22¾	10½	1	3¼	12	34	6	4½	4¼	19	4½	2¼	½	4	17 9/16	18	-	-
20	23¼	25¼	11¾	1	3¼	12	38	7	4¾	4	21	4½	2¼	½	-	-	-	-	-
24	24	25¾	12 9/16	1	3¼	12	40	7	4¾	4	22	4½	2¼	½	-	-	-	-	-
24	27¼	29¼	13¾	1	3¼	12	44	8	5¾	4¼	25	4½	2¼	½	-	-	-	-	-
30	33¼	36¼	17¾	1¼	4	15	54	10	6	4½	31	6	2¼	½	-	-	-	-	-
36	39¼	42¼	20½	1¼	4	15	62	12	6¼	5¼	37	6	2½	½	-	-	-	-	-
42	45¼	48¾	23½	1½	5	18	84	14	7	6	43	6	2½	¾	-	-	-	-	-
48	51¼	54¾	26¼	1½	6	24 1	90	16	7¾	6¼	49¼	6	2½	¾	-	-	-	-	-
54	58¼	61½	30	2	6	30 1	100	18	7¾	6¼	55¼	7	3	1	-	-	-	-	-
60	65	68	34	2	6	30 1	102	20	8¼	7¼	61¼	8	3¼	1	-	-	-	-	-
72	77¼	80¼	41	2	13	5	121	25¼	10¾	8¾	73¼	8	3¾	1	-	-	-	-	-

GATE DIMENSIONS IN INCHES

Waterman Industries

3

WATERMAN C-10 SLUICE GATE

NTS

BENJAMIN EDWARD KUHAN — STATE OF WASHINGTON — 48828 — REGISTERED PROFESSIONAL ENGINEER — 3/22/12

DESIGNED BY BEK	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS				
DRAWN BY BEK		PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264	Ph (360) 354-3687 Fax (360) 354-0407			
CHECKED BY			NO.	DATE	REVISION	BY

CITY OF FERNDALE
PO BOX 936
FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
REGIONAL POND DETAIL SHEET

JOB# / DWG		DATE
11022	DET.2	3-30-12
SCALE H: n/a	V: n/a	SHEET 53

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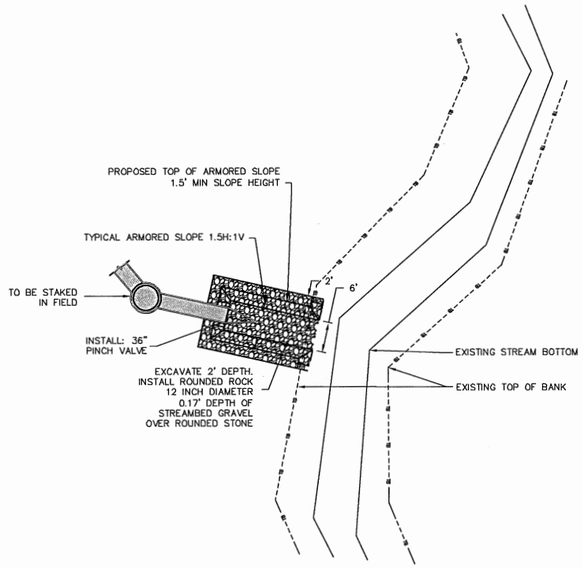
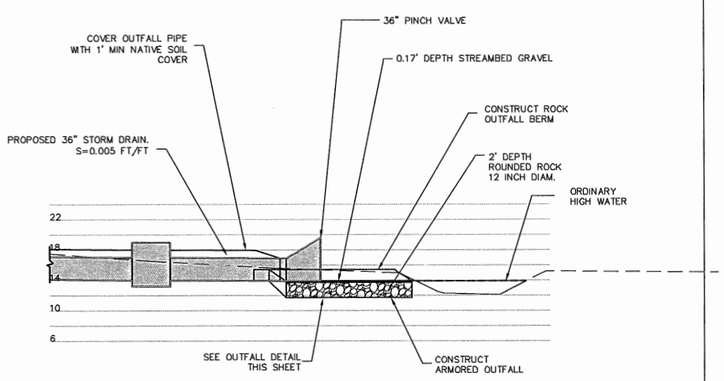


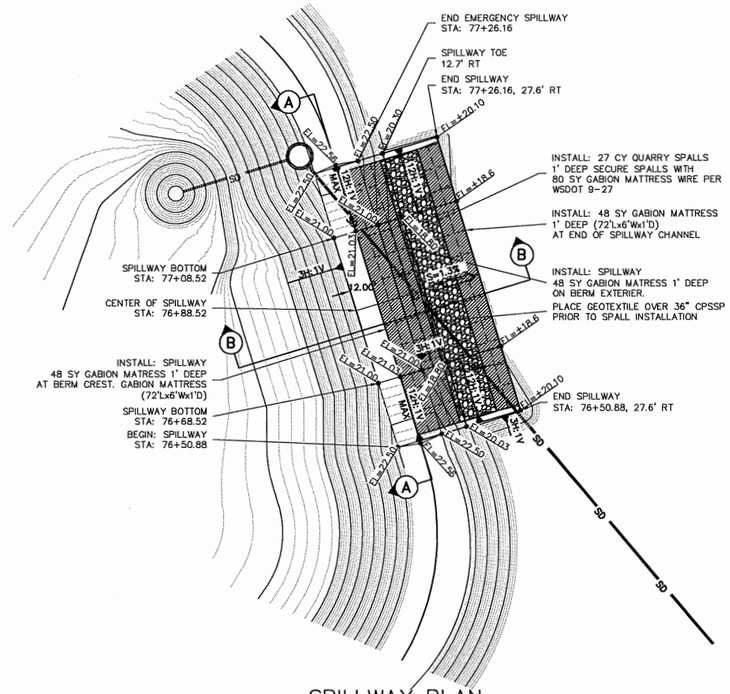
OUTFALL
PLAN VIEW



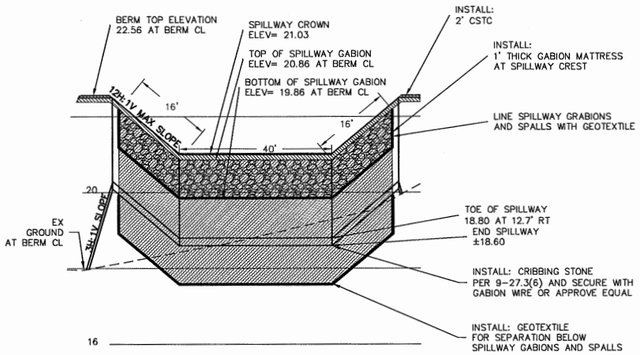
OUTFALL
PROFILE

POND OUTFALL

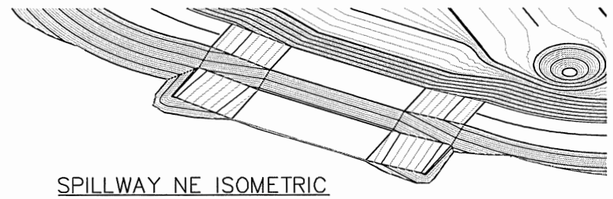
NTS



SPILLWAY PLAN
NTS



SPILLWAY SECTION A-A
NTS



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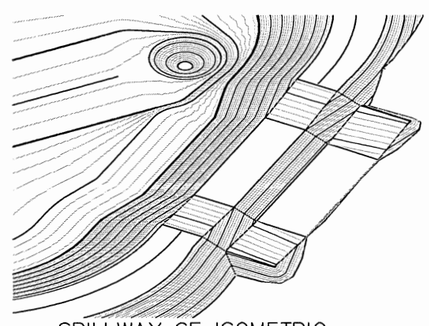

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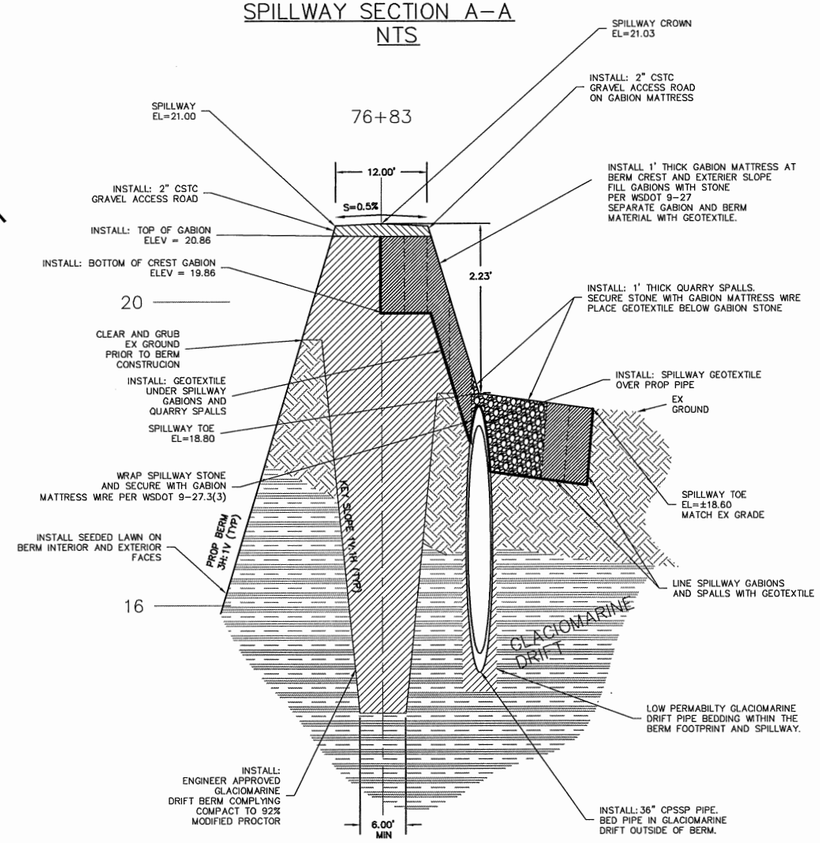

SPILLWAY SECTION B-B

SPILLWAY DETAIL

NTS

BENJAMIN EDWARD JULIEN
STATE OF WASHINGTON
48828
REGISTERED PROFESSIONAL ENGINEER
3/22/12

DESIGNED BY BEK DRAWN BY BEK CHECKED BY	R&E	REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND DETAIL SHEET	JOB# / DWG 11022 DET.2 SCALE H: n/a V: n/a	DATE 3-30-12 SHEET 54

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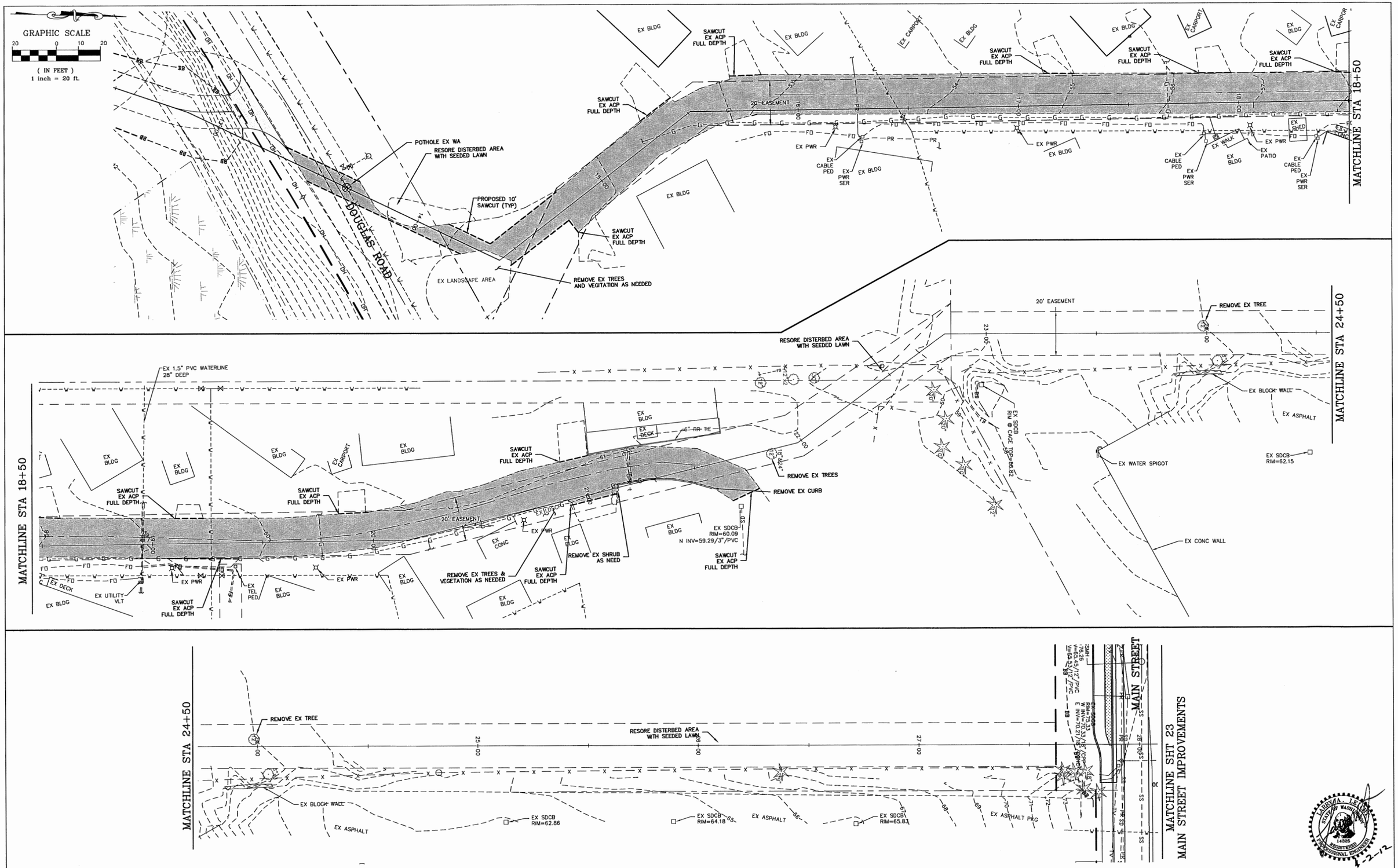

DESIGNED BY	LL
DRAWN BY	LMC
CHECKED BY	LL

R&E
REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
PO BOX 936
FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
REGIONAL POND STORM CONVEYANCE
STA 13+00 TO 28+00 DEMOLITION PLAN

JOB# / DWG		DATE
11022	SP1	3-30-12
SCALE		SHEET
H: 1"=20'	V: n/a	55

LARRY A. LEWIS STATE OF WASHINGTON 14325 REGISTERED PROFESSIONAL ENGINEER 3-30-12

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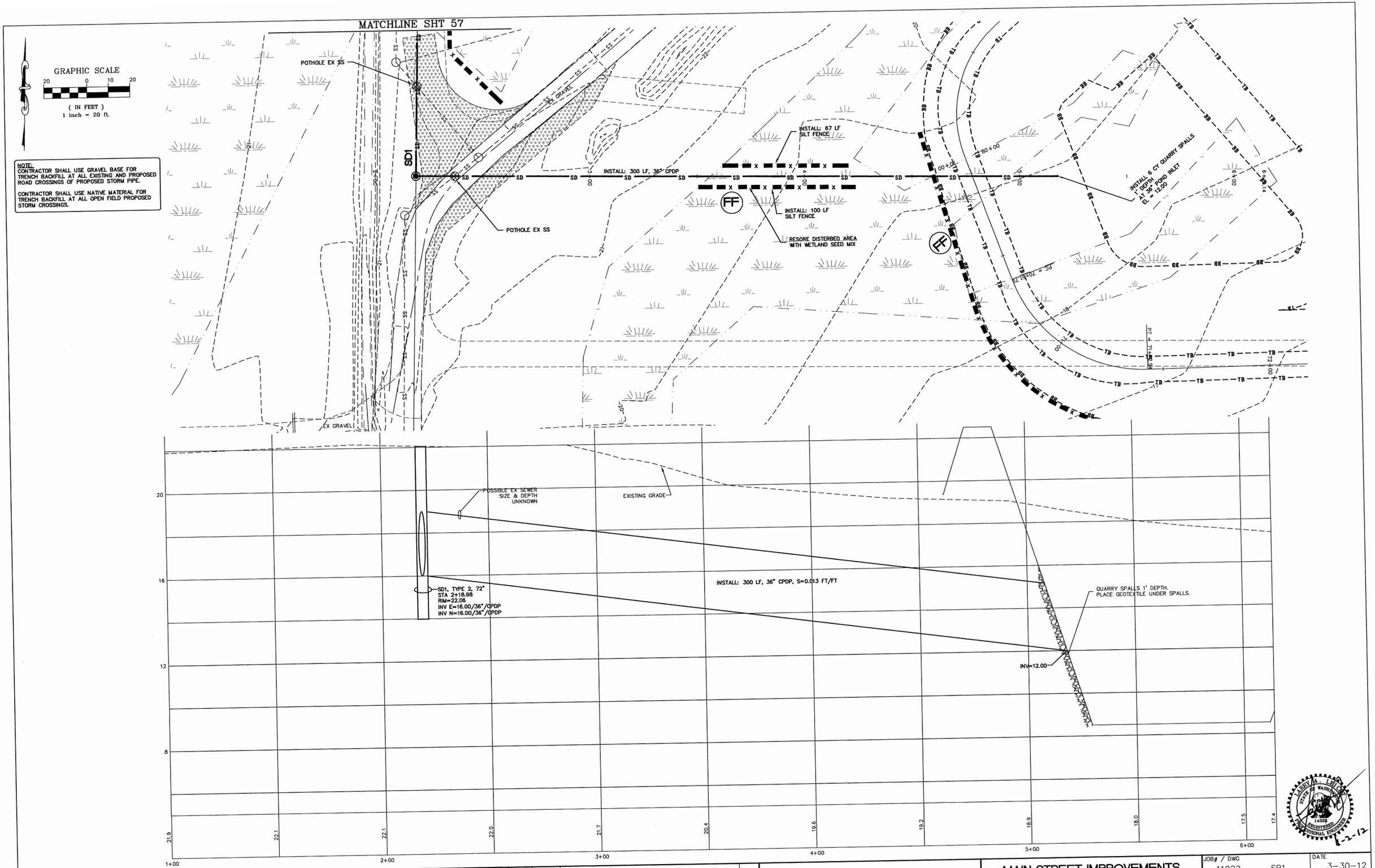

DESIGNED BY LL DRAWN BY LMC CHECKED BY LL	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND STORM CONVEYANCE STA 1+00 TO 6+00 (POND TERMINUS)	JOB# / DWG 11022 SP1 SCALE H: 1"=20' V: 1"=2'	DATE 3-30-12 SHEET 56

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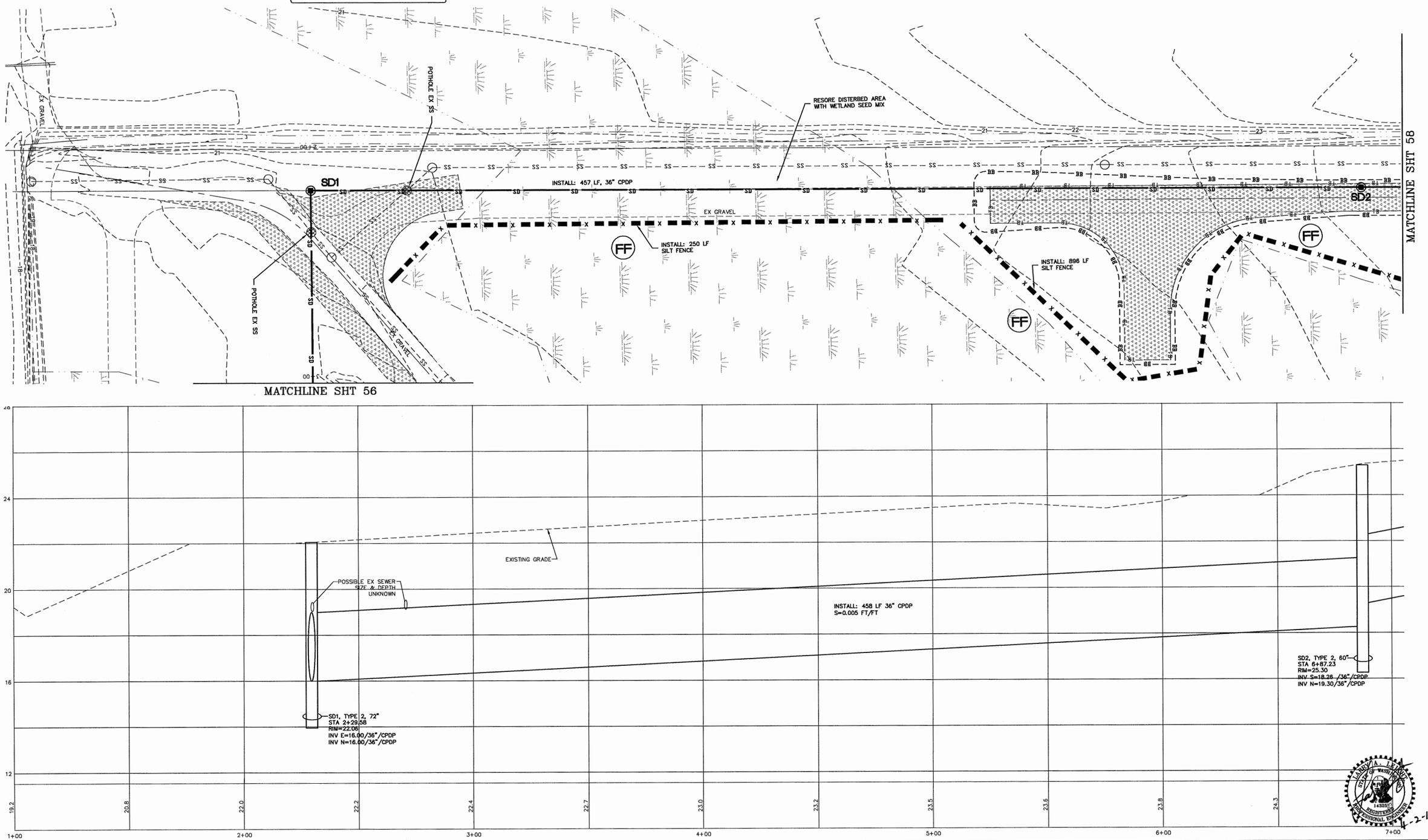
GRAPHIC SCALE

20 0 10 20

(IN FEET)
1 inch = 20 ft.

NOTE:
CONTRACTOR SHALL USE GRAVEL BASE FOR TRENCH BACKFILL AT ALL EXISTING AND PROPOSED ROAD CROSSINGS OF PROPOSED STORM PIPE.

CONTRACTOR SHALL USE NATIVE MATERIAL FOR TRENCH BACKFILL AT ALL OPEN FIELD PROPOSED STORM CROSSINGS.



DESIGNED BY LL DRAWN BY LMC CHECKED BY LL	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. DATE REVISION BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND STORM CONVEYANCE STA 1+00 TO 7+00	JOB# / DWG 11022 SP1 SCALE H: 1"=20' V: 1"=2'	DATE 3-30-12 SHEET 57

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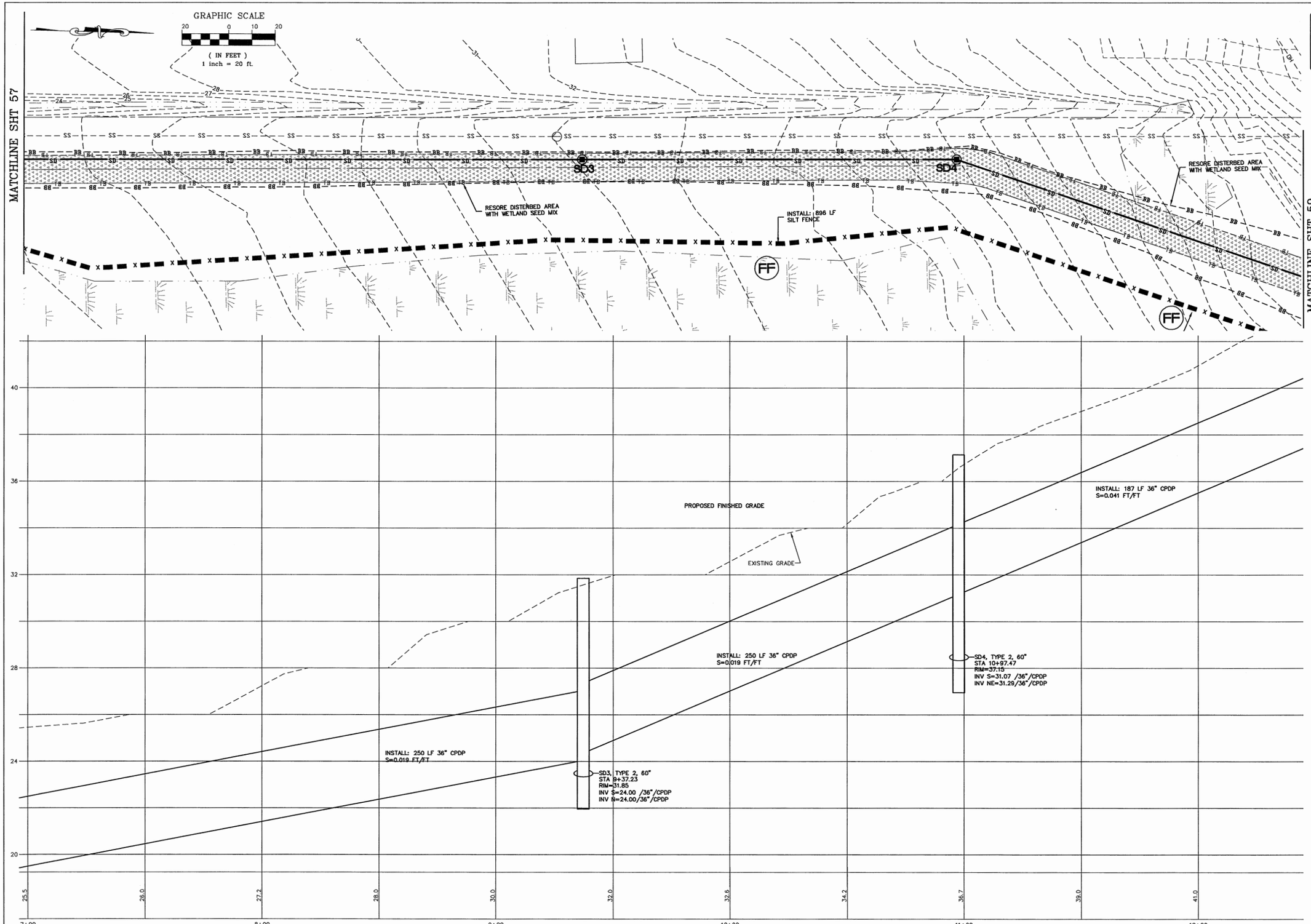
NOTE:
CONTRACTOR SHALL USE GRAVEL BASE FOR TRENCH BACKFILL AT ALL EXISTING AND PROPOSED ROAD CROSSINGS OF PROPOSED STORM PIPE.

CONTRACTOR SHALL USE NATIVE MATERIAL FOR TRENCH BACKFILL AT ALL OPEN FIELD PROPOSED STORM CROSSINGS.



4-2-12

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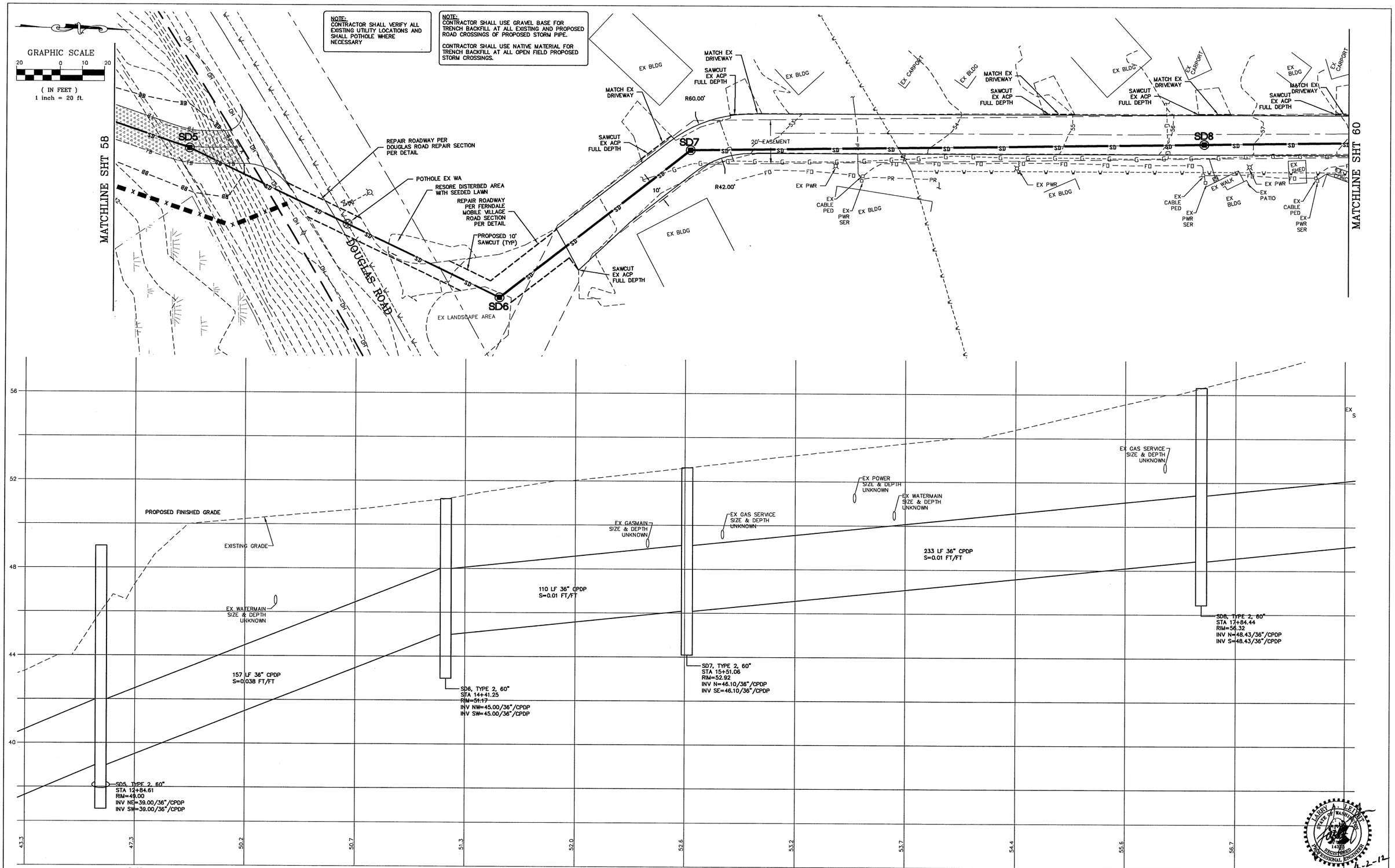
GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

NOTE:
CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND SHALL POTHOLE WHERE NECESSARY

NOTE:
CONTRACTOR SHALL USE GRAVEL BASE FOR TRENCH BACKFILL AT ALL EXISTING AND PROPOSED ROAD CROSSINGS OF PROPOSED STORM PIPE.

CONTRACTOR SHALL USE NATIVE MATERIAL FOR TRENCH BACKFILL AT ALL OPEN FIELD PROPOSED STORM CROSSINGS.



4-2-12

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DRAWN BY	LMC
CHECKED BY	LL

REICHHARDT & EBE
ENGINEERING, INC.
CONSULTING ENGINEERS
PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264
Ph (360) 354-3687 Fax (360) 354-0407

NO.	DATE	REVISION	BY

CITY OF FERNDALE
PO BOX 936
FERNDALE, WA 98248

MAIN STREET IMPROVEMENTS
(DOUGLAS TO CHURCH)
REGIONAL POND STORM CONVEYANCE
STA 12+50 TO 18+50

JOB# / DWG	11022 SP1	DATE	3-30-12
SCALE	H:1"=20' V:1"=2'	SHEET	59

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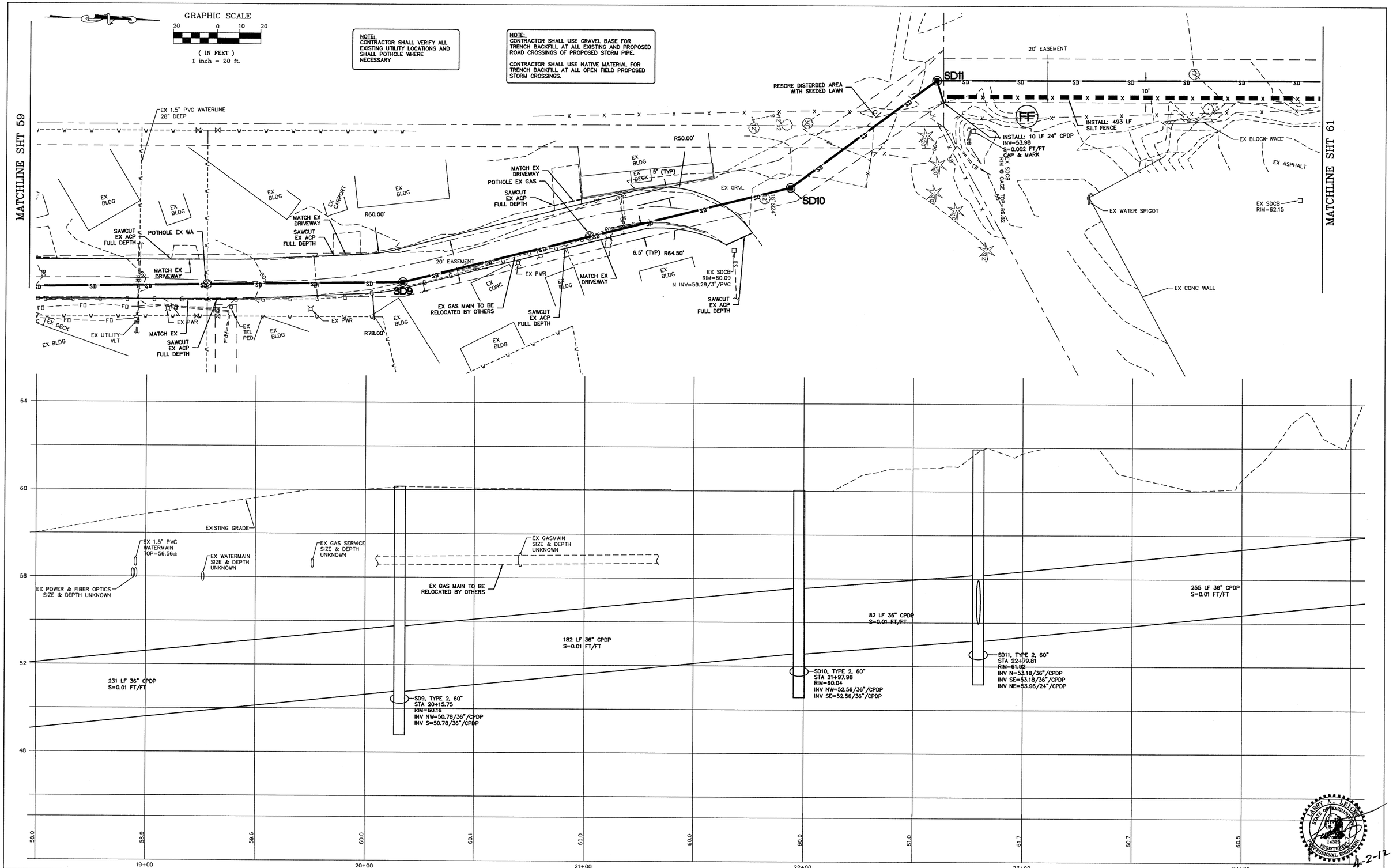
GRAPHIC SCALE
20 0 10 20
(IN FEET)
1 inch = 20 ft.

NOTE:
CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS AND SHALL POTHOLE WHERE NECESSARY

NOTE:
CONTRACTOR SHALL USE GRAVEL BASE FOR TRENCH BACKFILL AT ALL EXISTING AND PROPOSED ROAD CROSSINGS OF PROPOSED STORM PIPE.

CONTRACTOR SHALL USE NATIVE MATERIAL FOR TRENCH BACKFILL AT ALL OPEN FIELD PROPOSED STORM CROSSINGS.



4-2-12

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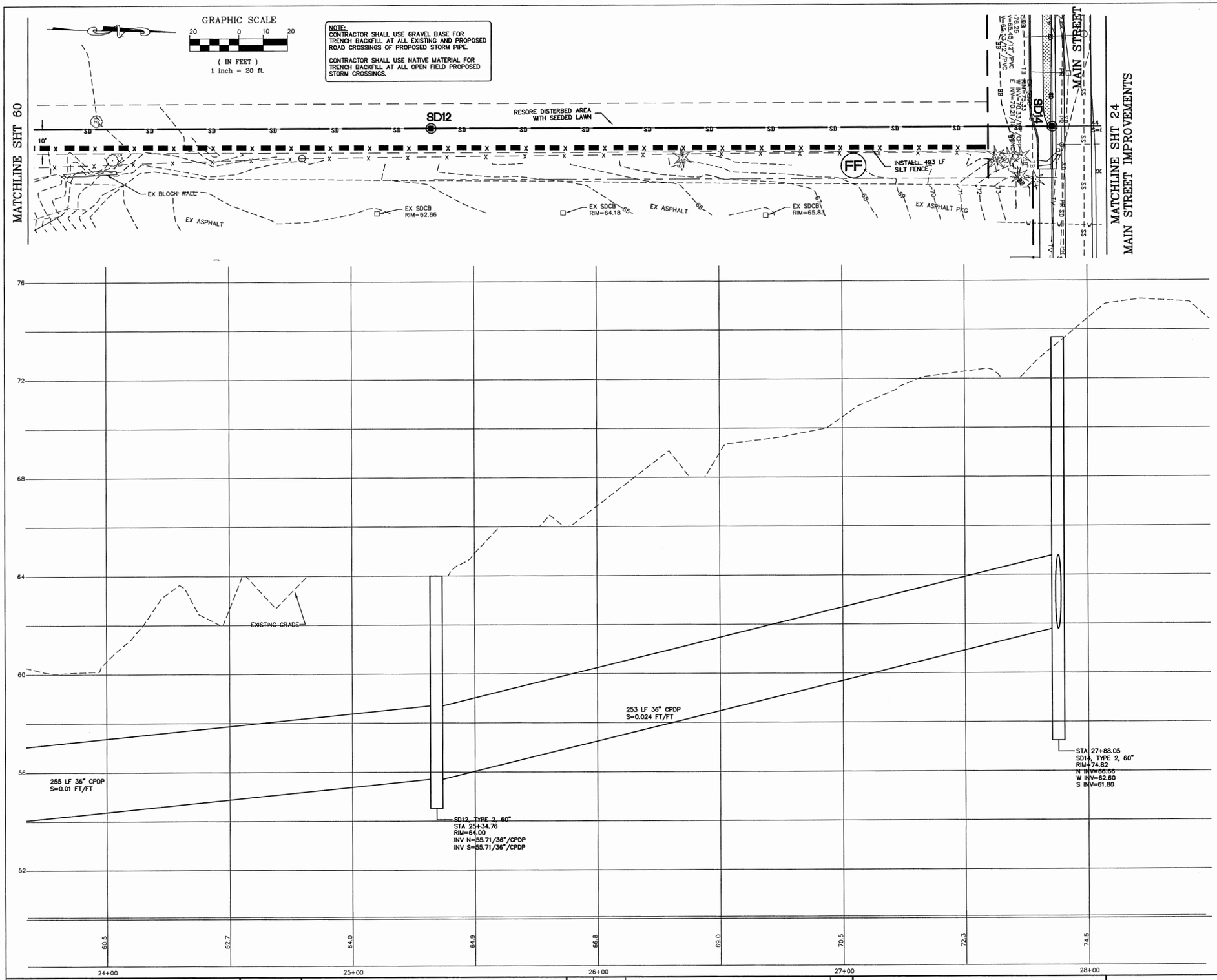

DESIGNED BY LL DRAWN BY LMC CHECKED BY LL	R&E REICHHARDT & EBE ENGINEERING, INC. CONSULTING ENGINEERS PO Box 978 423 Front St., Ste 201 Lynden, Washington 98264 Ph (360) 354-3687 Fax (360) 354-0407	NO. / DATE / REVISION / BY	CITY OF FERNDALE PO BOX 936 FERNDALE, WA 98248	MAIN STREET IMPROVEMENTS (DOUGLAS TO CHURCH) REGIONAL POND STORM CONVEYANCE STA 24+50 TO 27+50	JOB# / DWG 11022 SP1 SCALE H:1"=20' V:1"=2'	DATE 3-30-12 SHEET 61

LARRY A. LEITH STATE OF WASHINGTON 14325 REGISTERED PROFESSIONAL ENGINEER
4-2-12

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