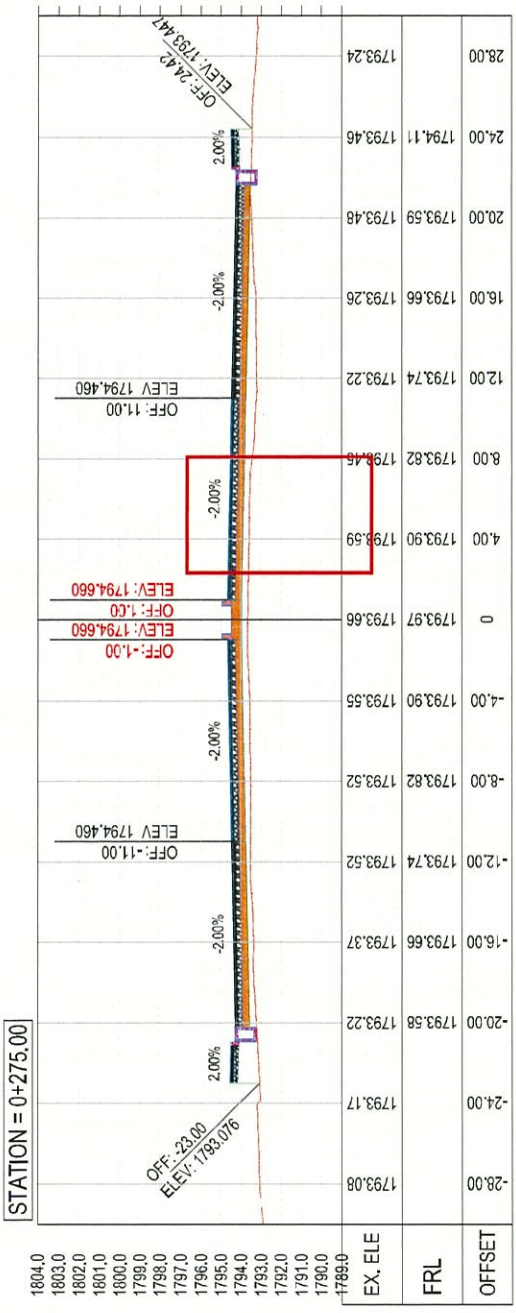

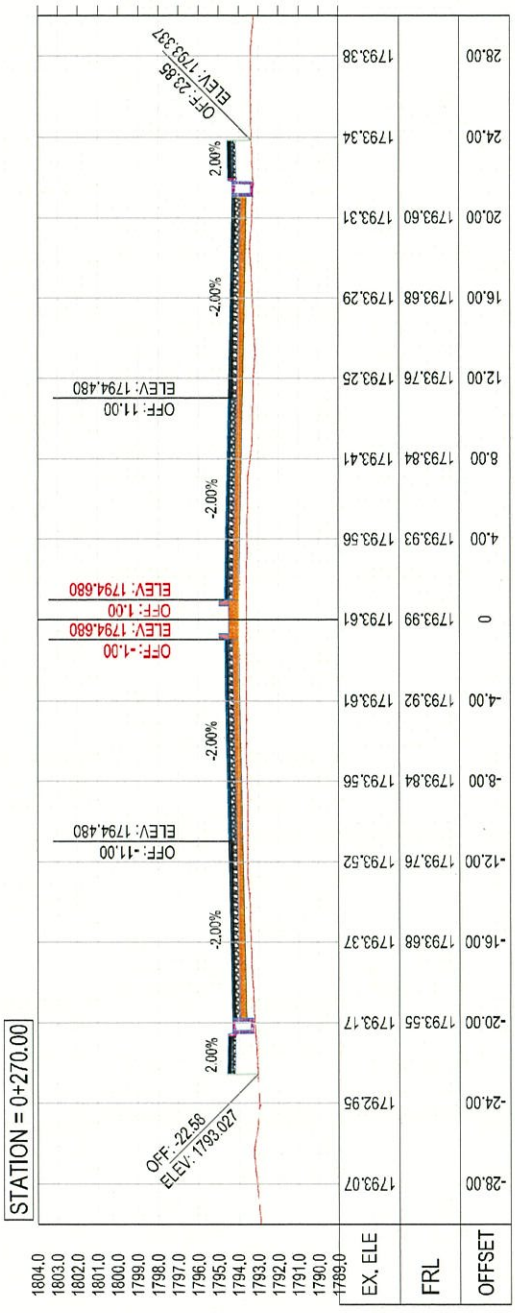

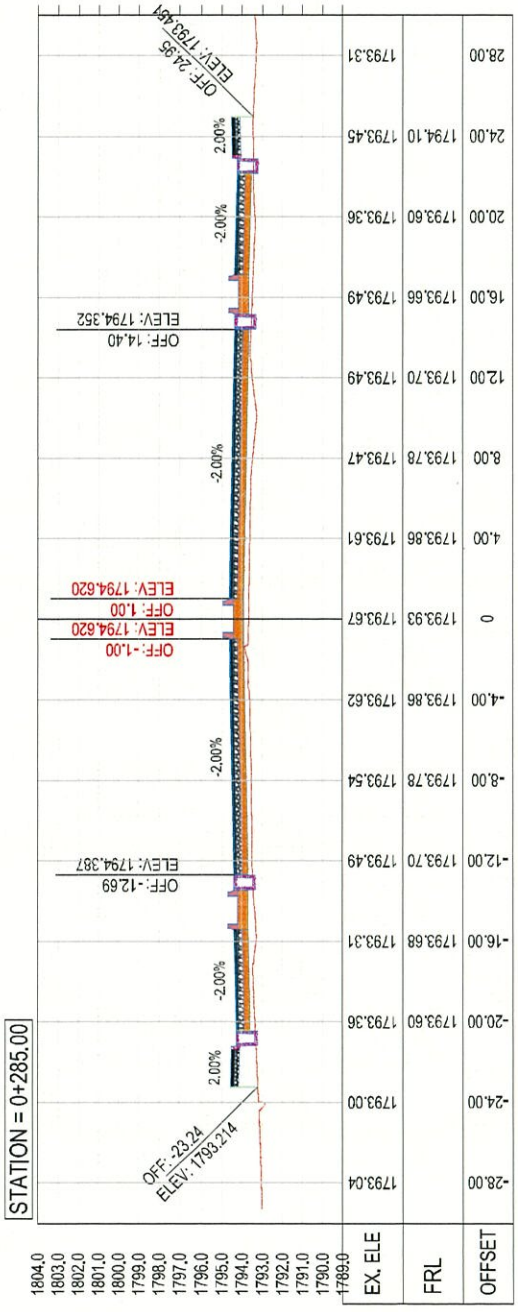

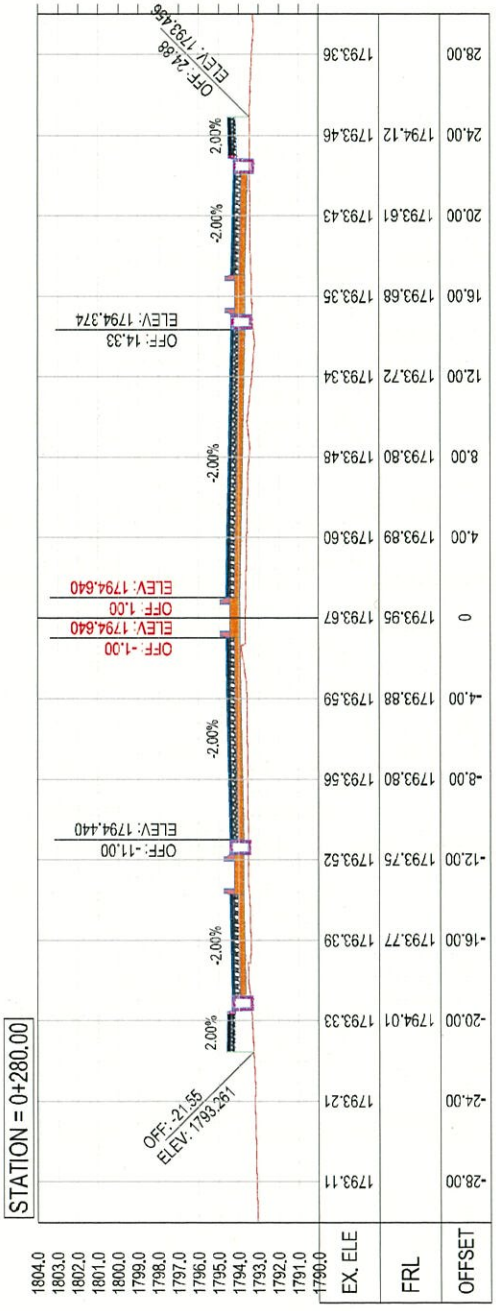

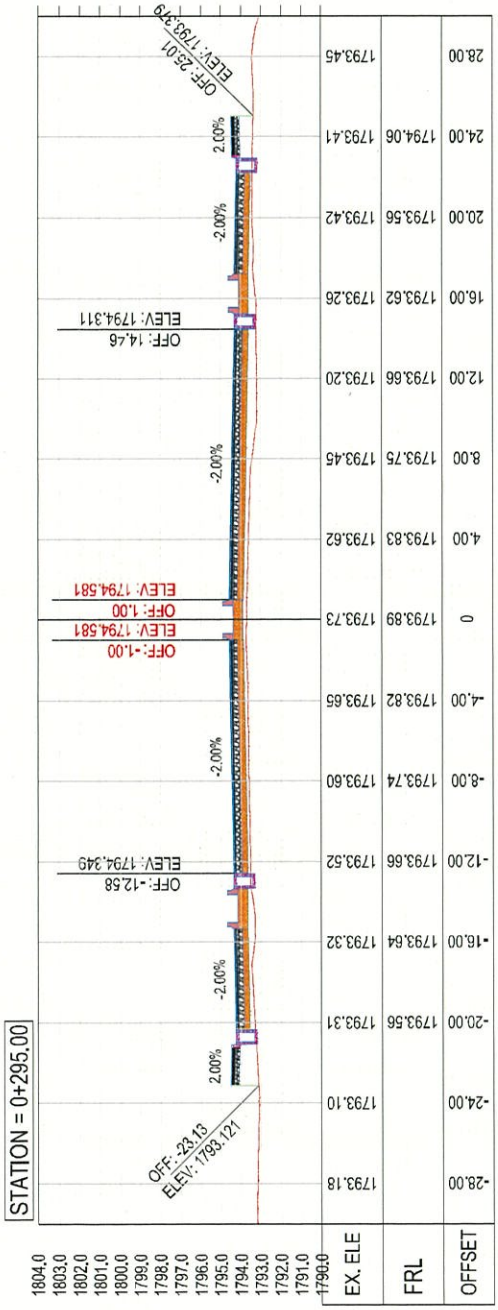

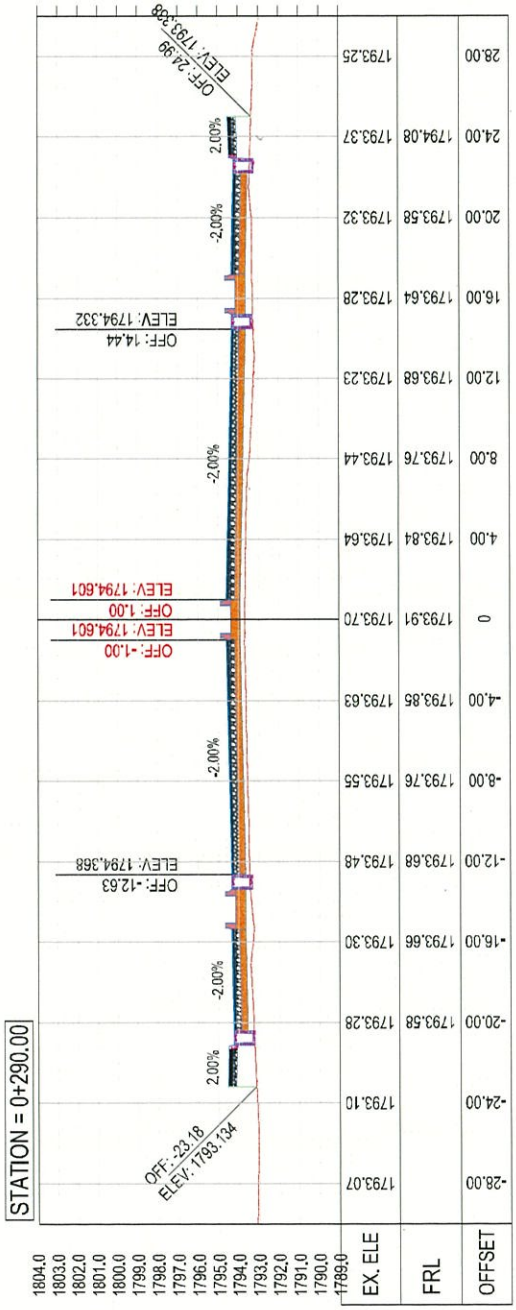

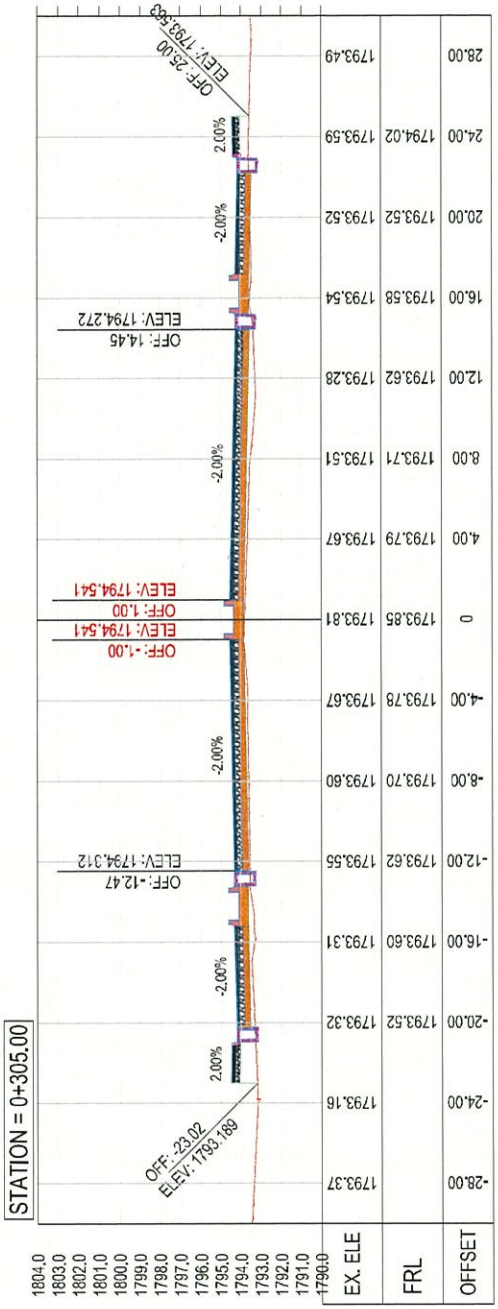

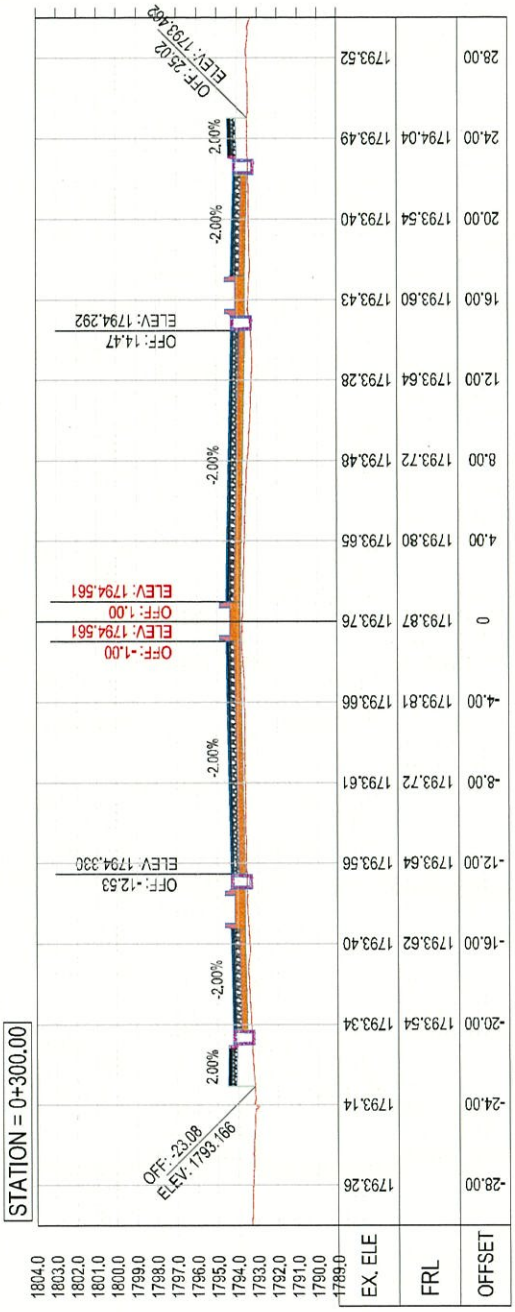

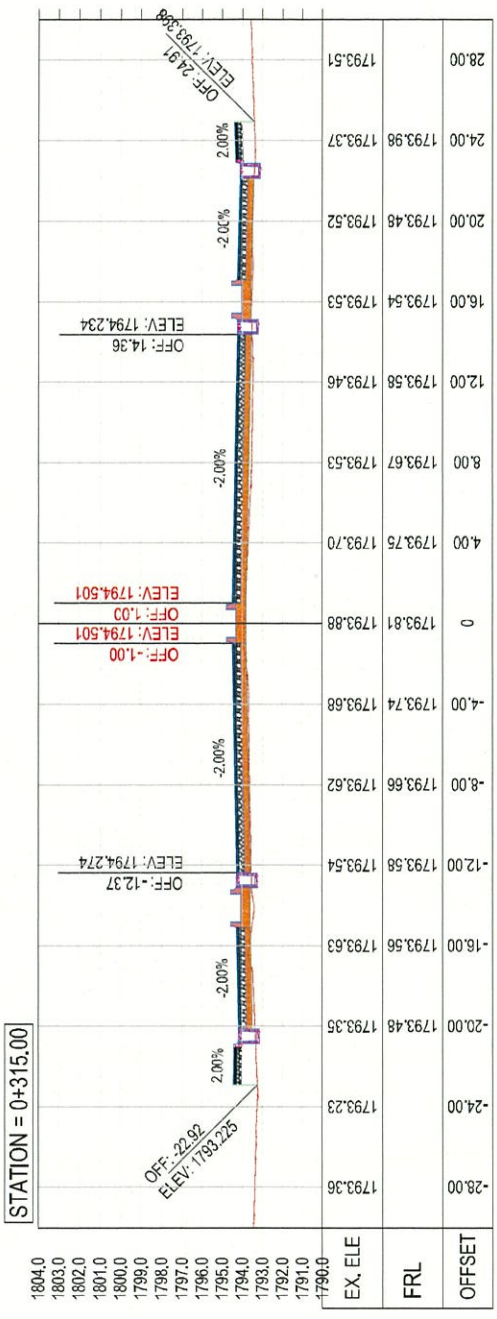

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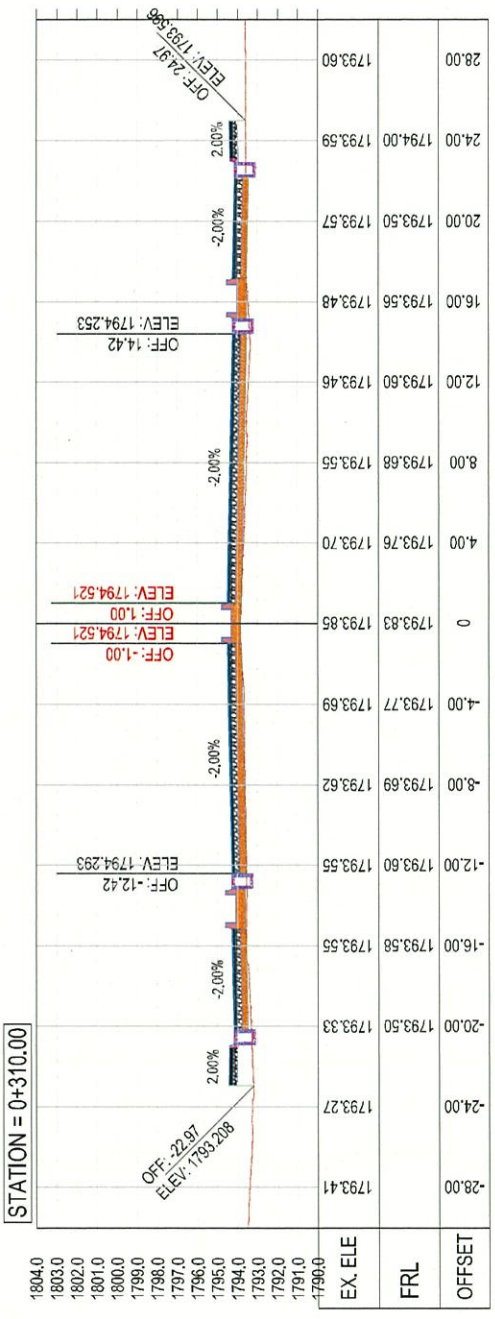

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4.00	1793.76	1793.70
8.00	1793.68	1793.55
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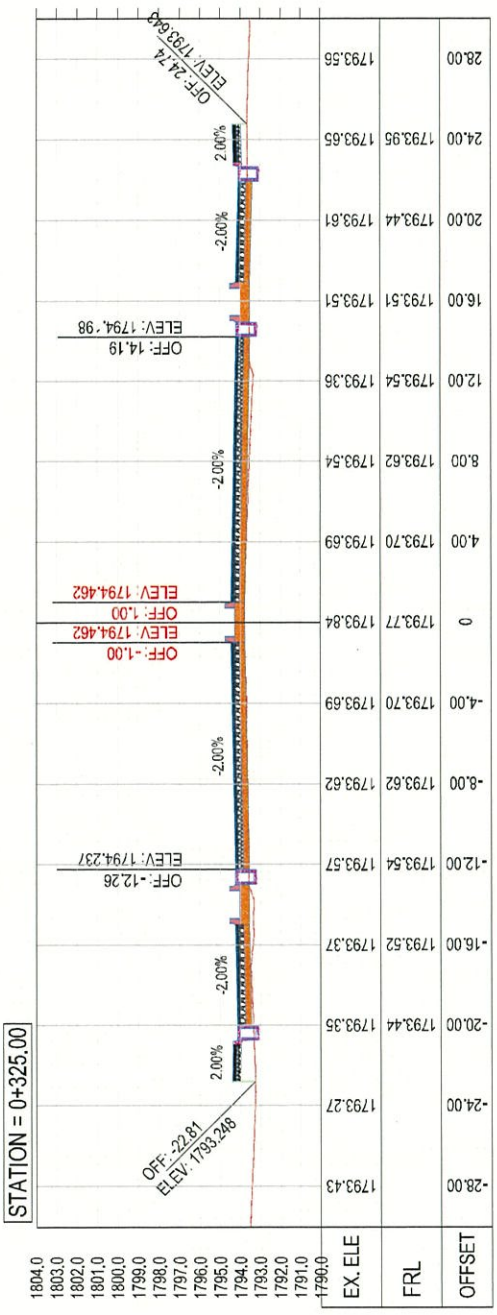

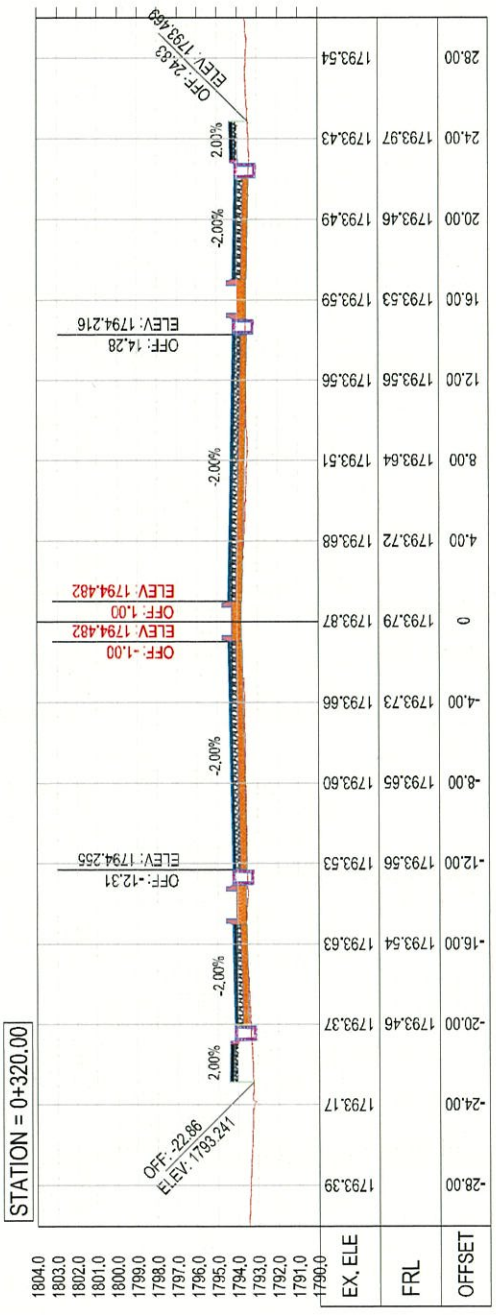

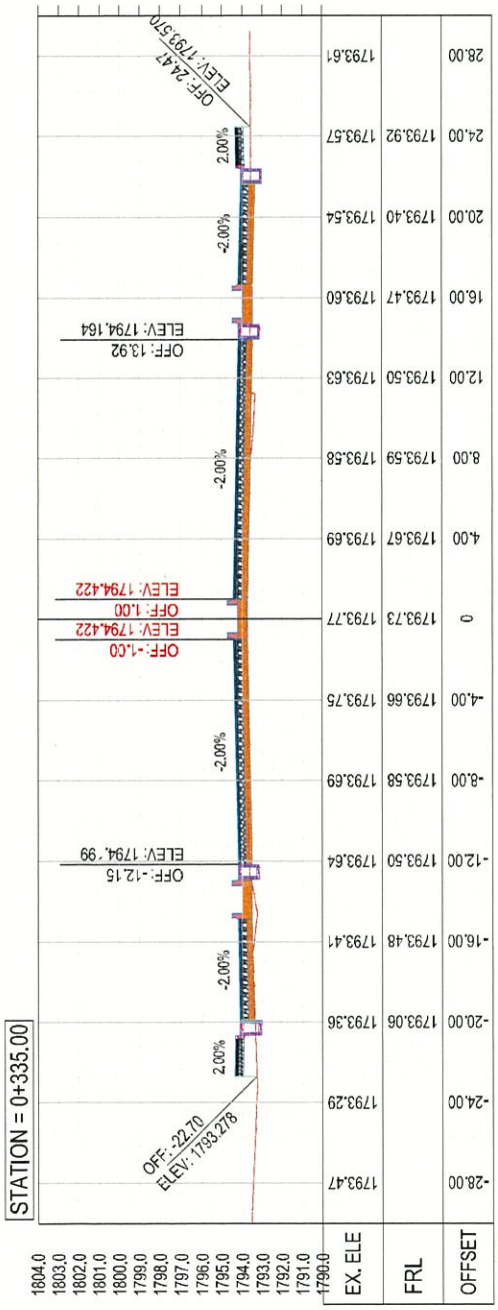

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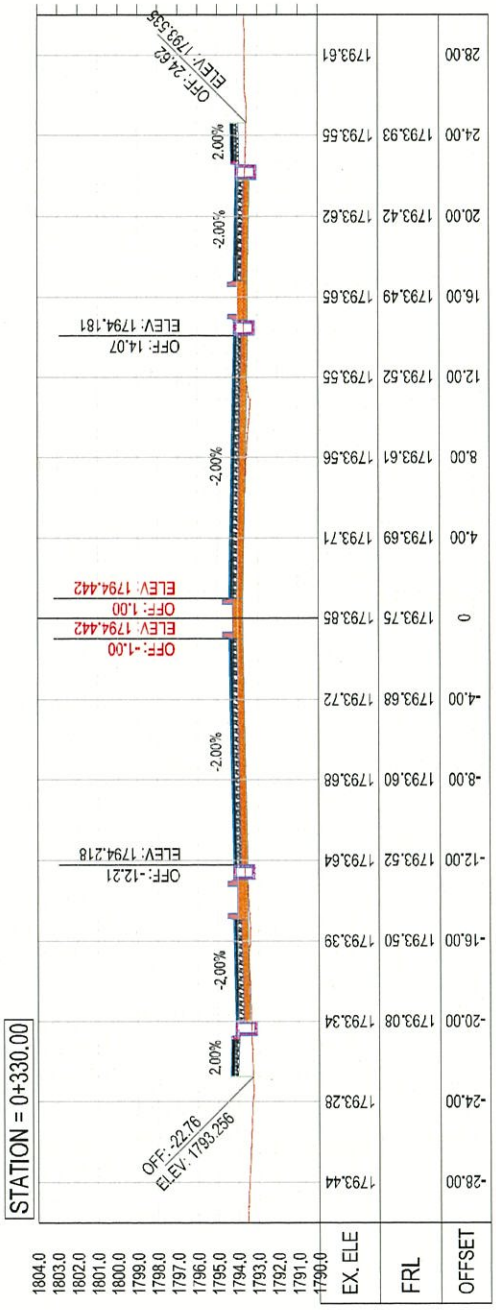

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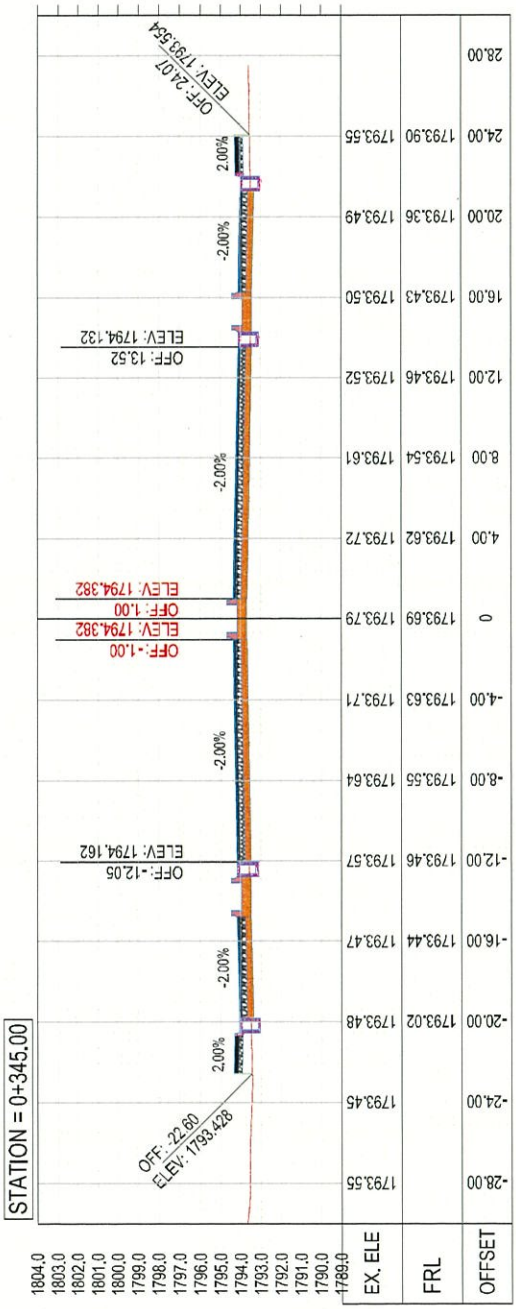

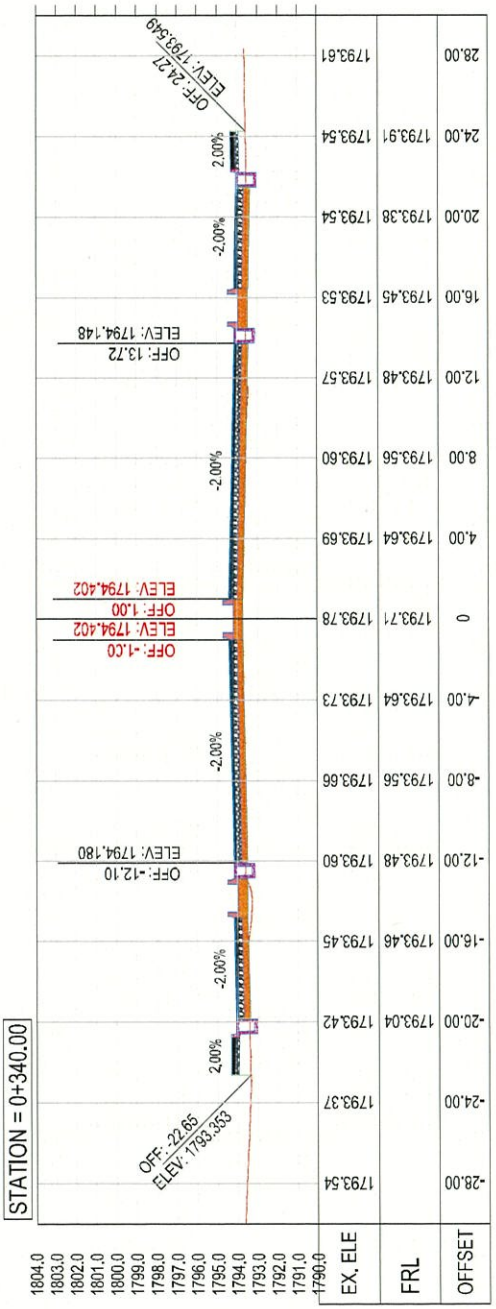

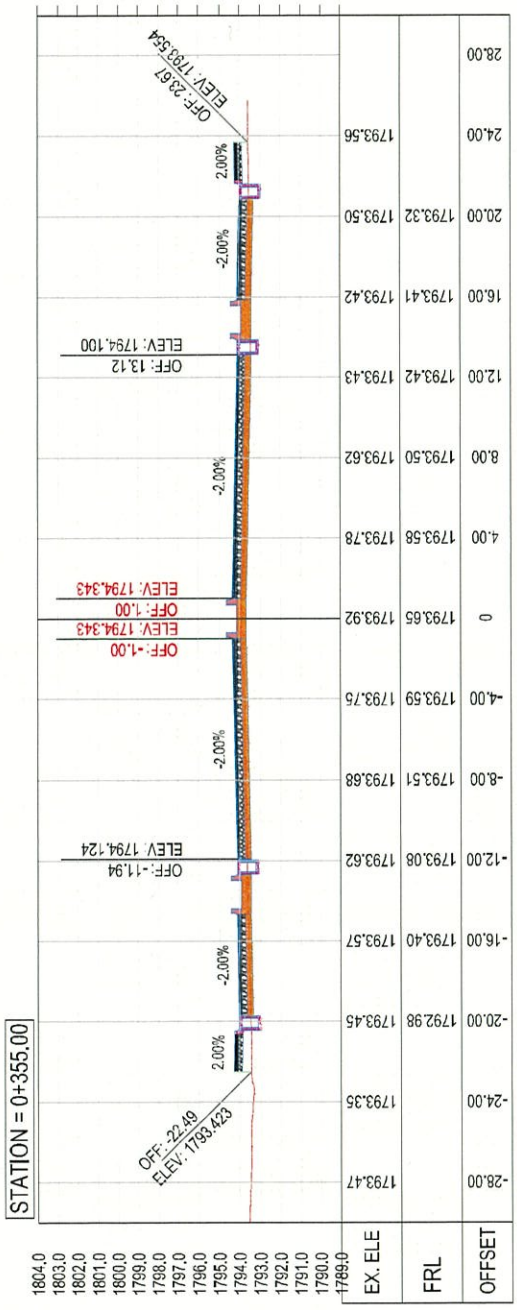

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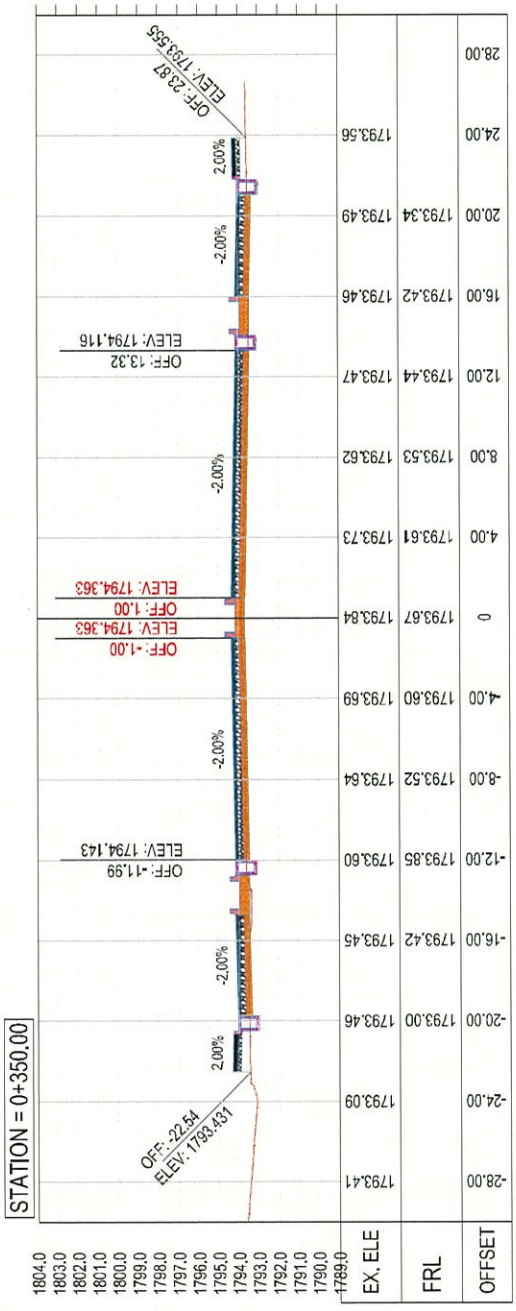

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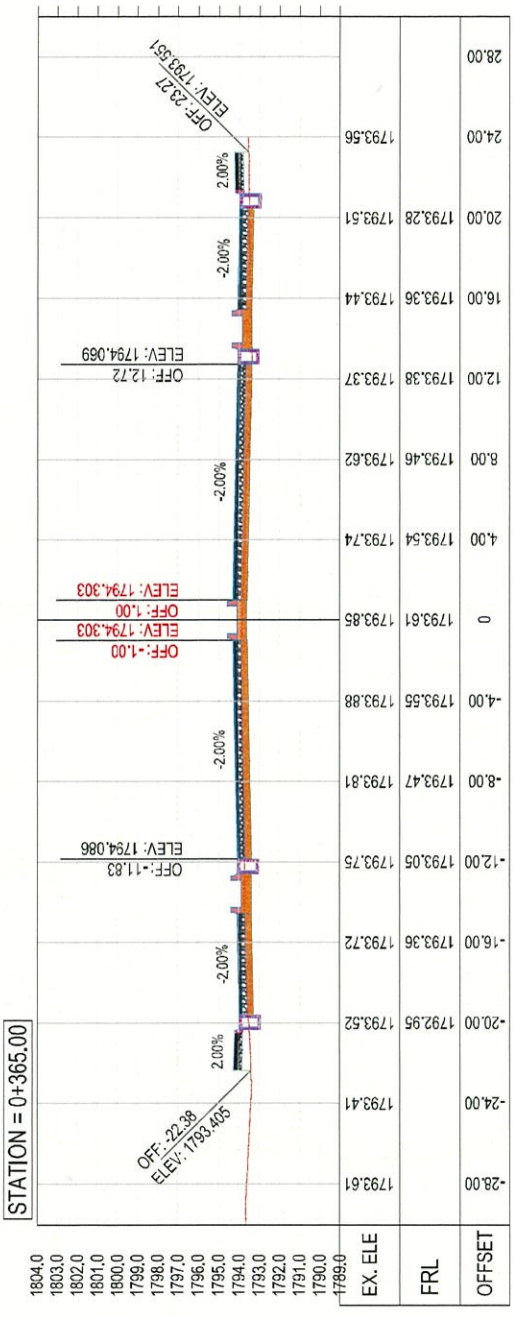

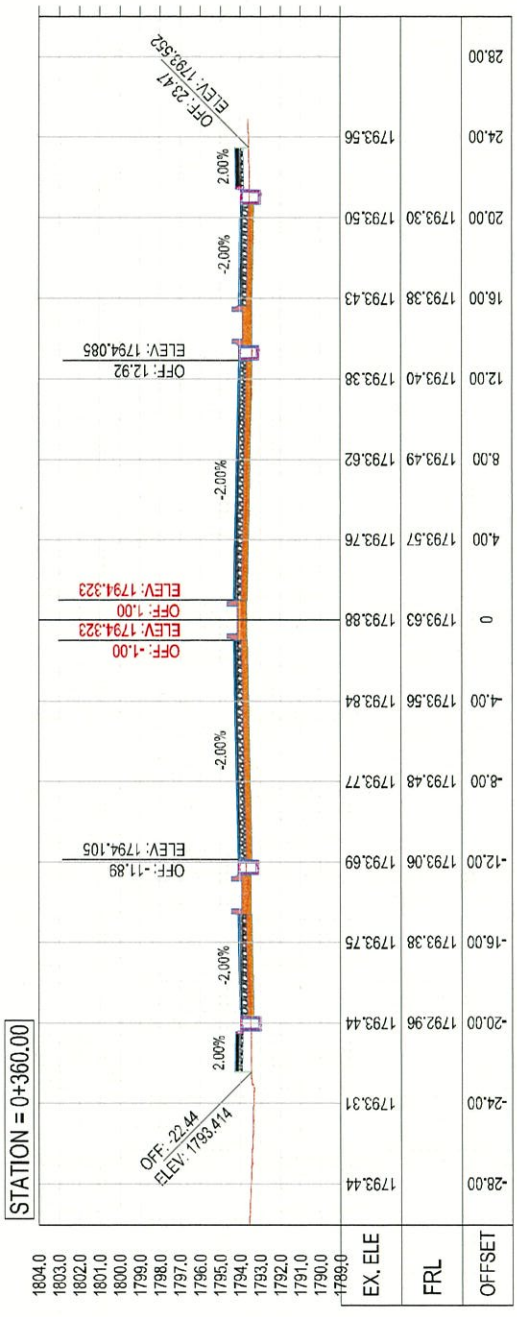

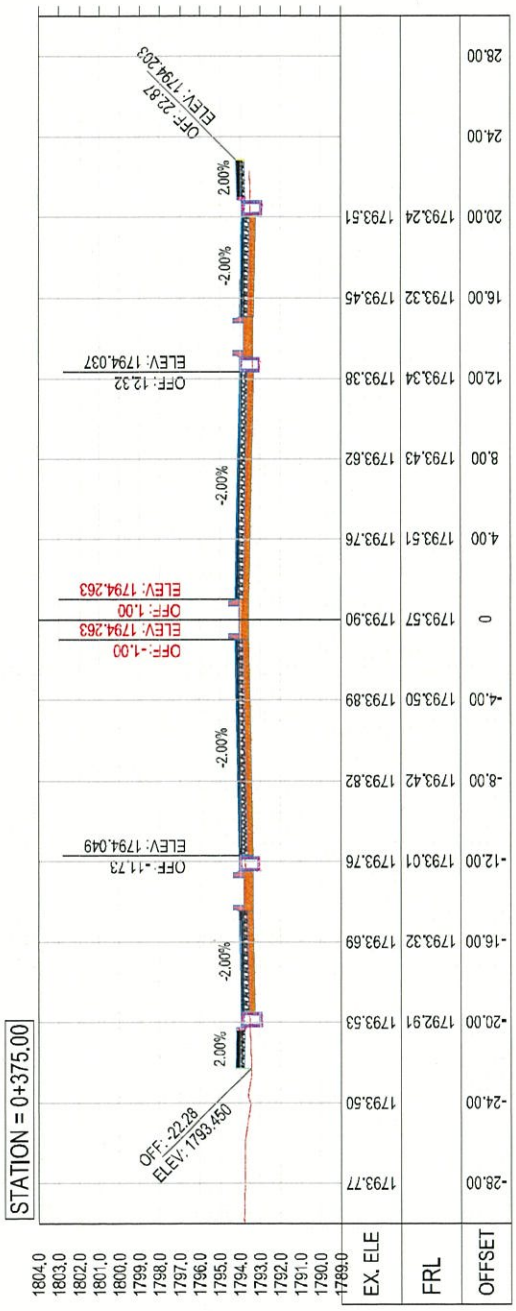

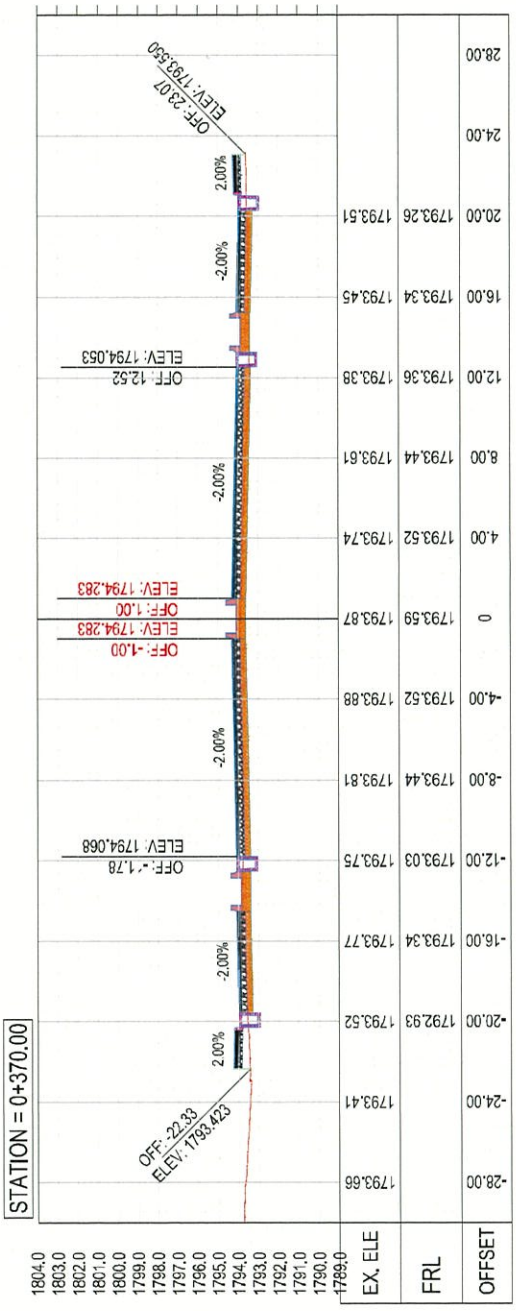

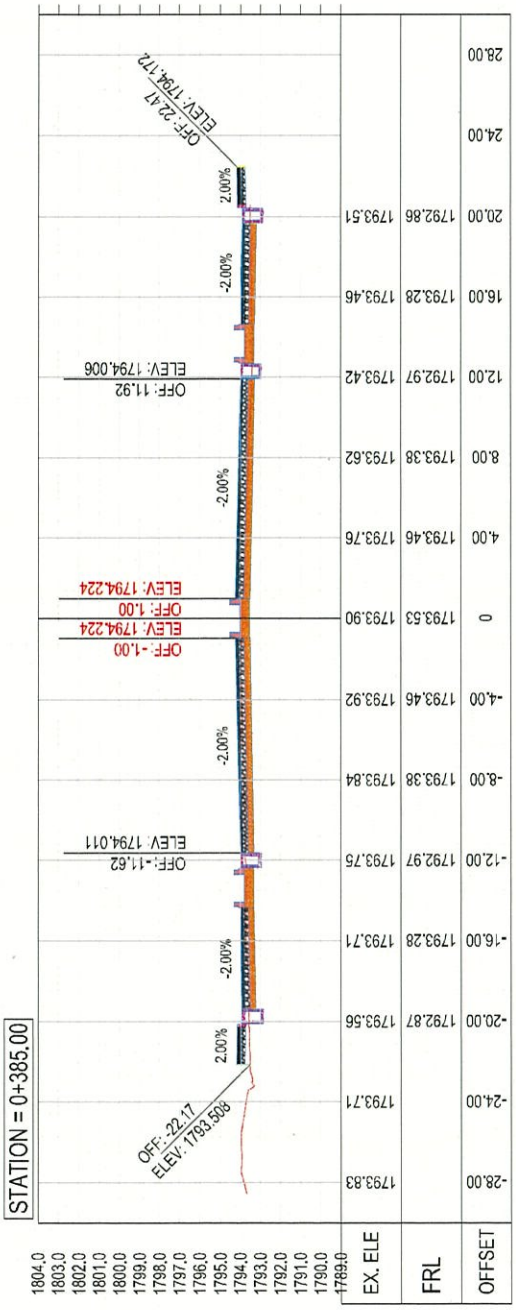

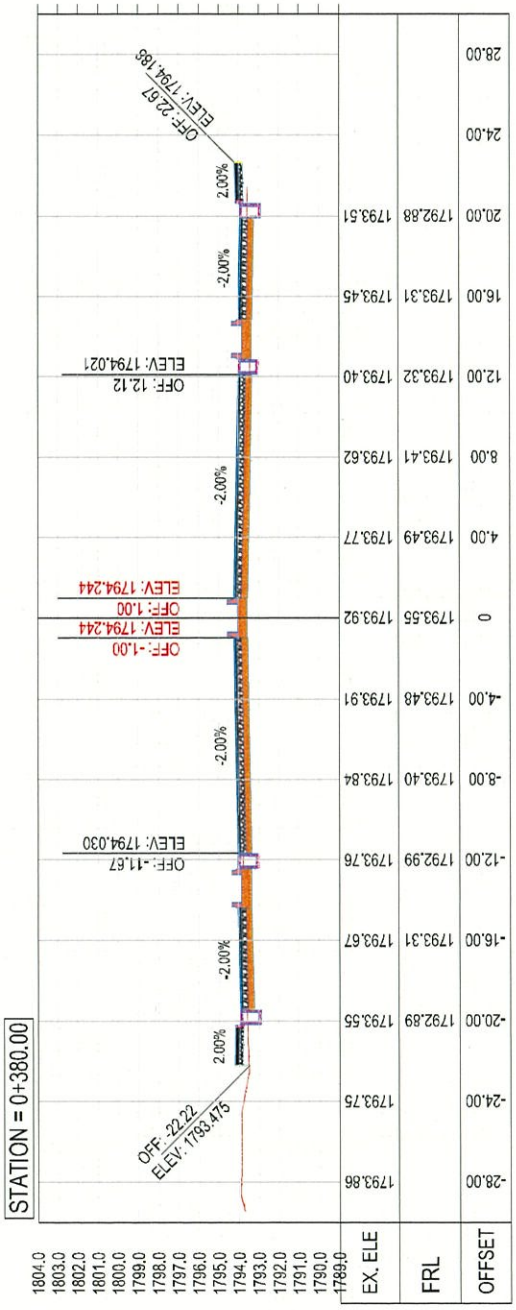

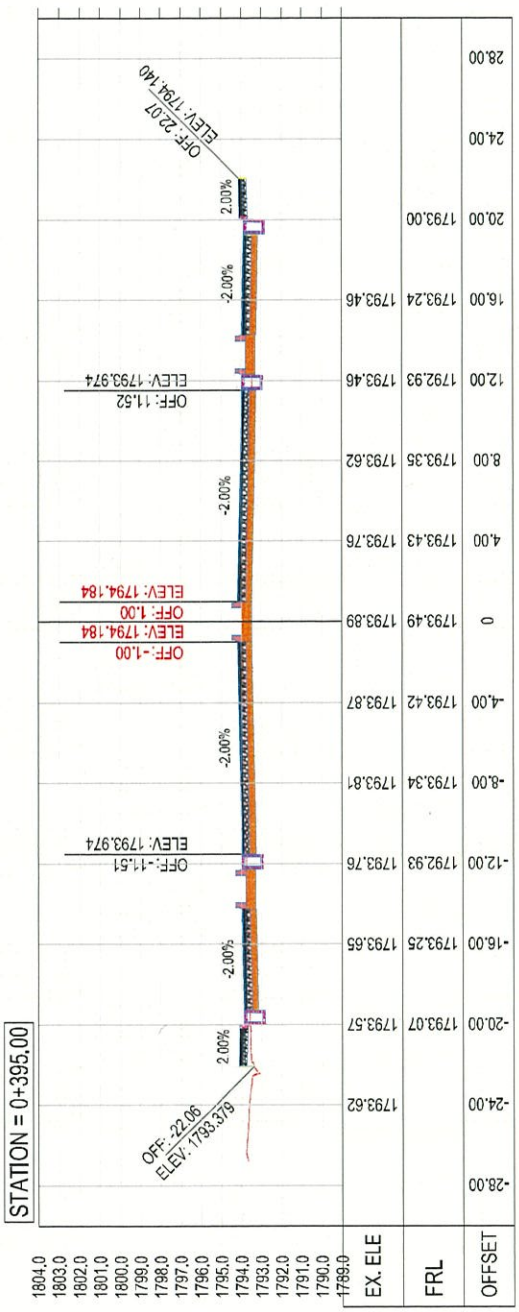

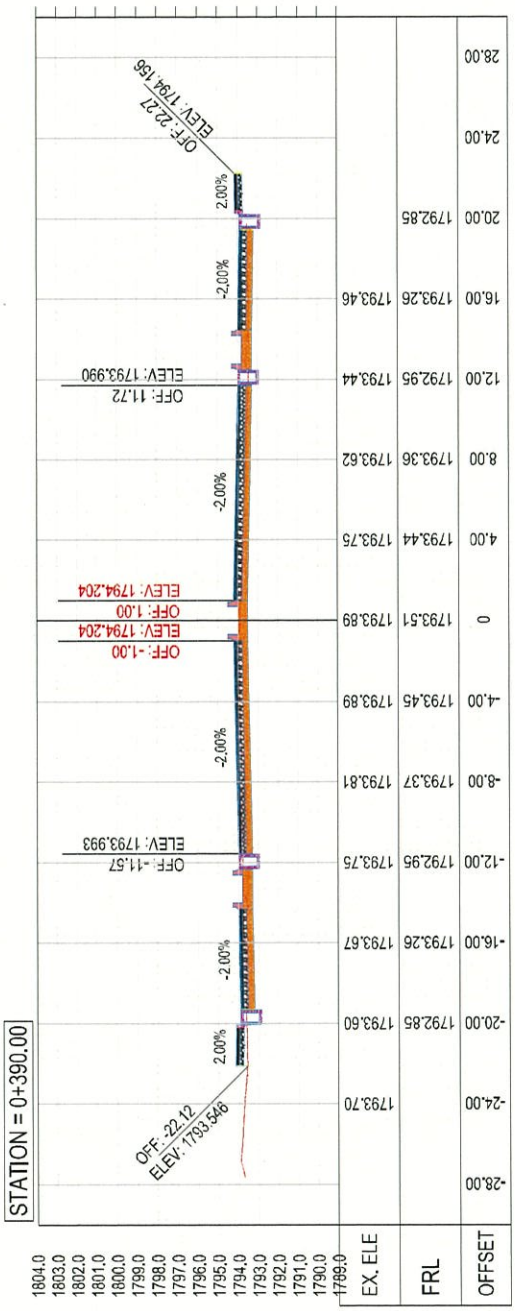

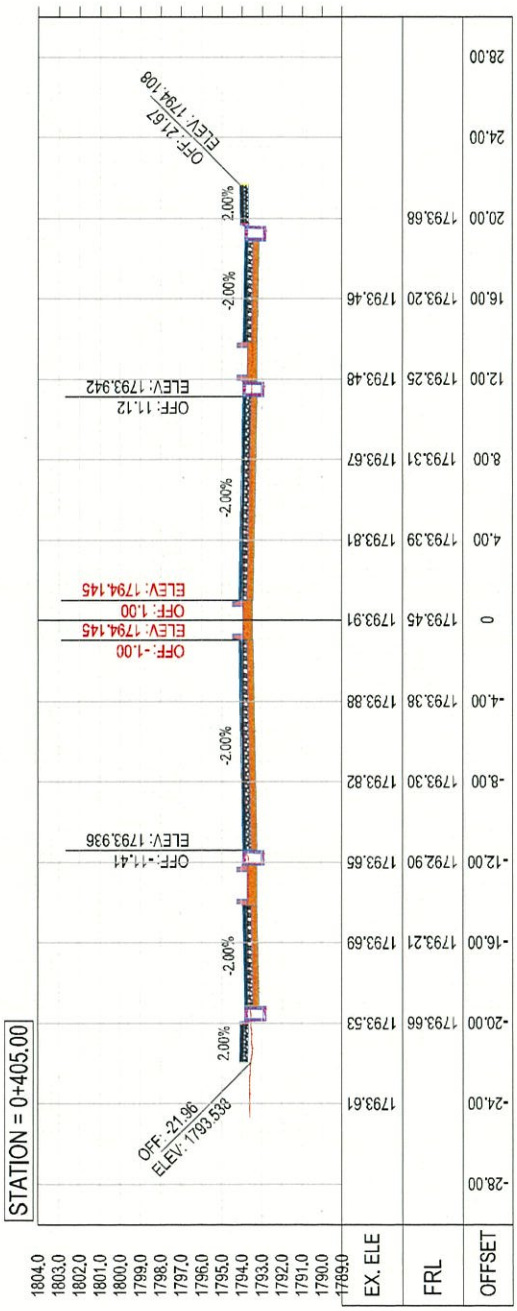

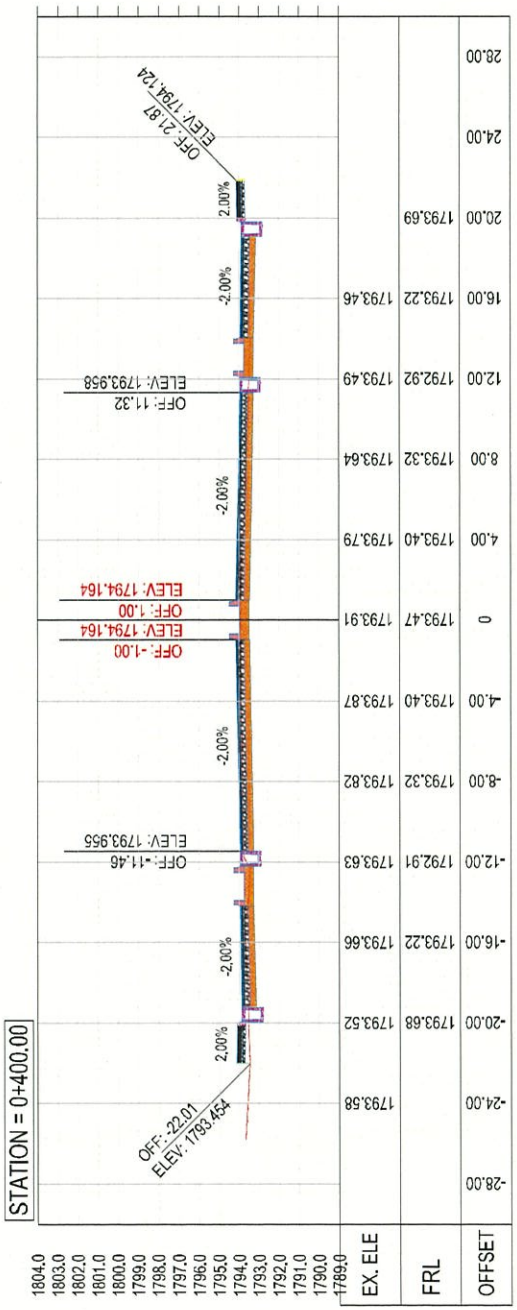

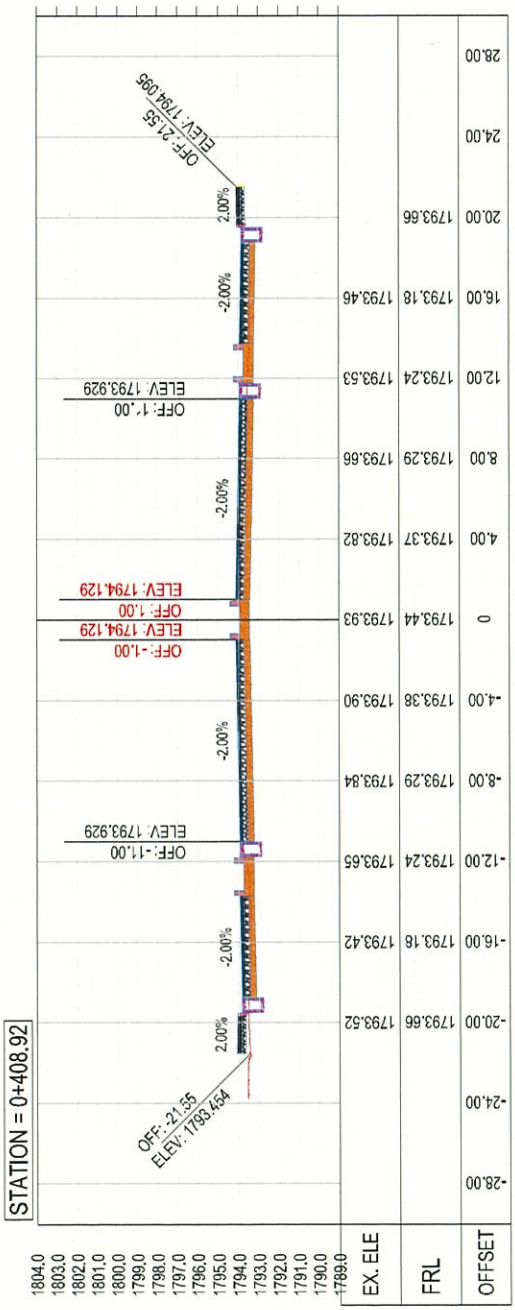

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-24.00		
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JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
KABUL MUNICIPALITY (KM)

PRELIMINARY DESIGN FOR THE REHABILITATION OF
BRIDGES ON MAIN ROADS IN KABUL

FINAL DESIGN DRAWINGS
OF
BEGRAMI BRIDGE (VB024)

GENERAL ARRANGEMENT,SUB STRUCTURE,SUPER STRUCTURE AND APPROACH ROAD

[redacted]

JULY,2021

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
KABUL MUNICIPALITY (KM)

PRELIMINARY DESIGN FOR THE REHABILITATION OF
BRIDGES ON MAIN ROADS IN KABUL

FINAL DESIGN DRAWINGS
FOR
30M LONG GULLBAGH BRIDGE (VB050)

GENERAL ARRANGEMENTS, SUB STRUCTURE,SUPER STRUCTURE
AND APPROACH ROAD

[redacted]

JULY,2021

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		GENERAL DRAWINGS	
1		COVER PAGE	
2		DRAWINGS INDEX	
3		GENERAL NOTES	
4		GENERAL NOTES FOR PRE-STRESSING	
		GENERAL ARRANGEMENT DRAWINGS	
5	BR-01	SITE SURVEY TOPOGRAPHY PLAN	
6	BR-02	SITE PLAN	
7	BR-03	BRIDGE PLAN AND PROFILE	
8	BR-04	BRIDGE CROSS SECTION	
		SUB STRUCTURE DRAWINGS	
9	BR-05	FOUNDATIONS PLAN	
10	BR-06	PILES DETAILS	
11	BR-07	BOTH SIDE ABUTMENTS PLAN	
12	BR-08	ABUTMENTS FRONT ELEVATION AND SECTION	
13	BR-09	ABUTMENT CAP DIMENSION DETAILS	
14	BR-10	ABUTMENTS REINFORCEMENTS DETAILS	
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		SUPERSTRUCTURE DRAWINGS	
17	BR-13	GIRDER DIMENSION DETAILS	
18	BR-14	GIRDER DIMENSION DETAILS	
19	BR-15	REINFORCEMENTS DETAIL OF GIRDER	
20	BR-16	REINFORCEMENT DETAIL OF DIAPHRAGM	
21	BR-17	TENDON DETAILS	
22	BR-18	TENDONS PLAN AND PROFILES (TENDON 1 AND 2)	
23	BR-19	TENDONS PLAN AND PROFILES (TENDON 3 AND 4)	
24	BR-20	TENDON DETAILS	
25	BR-21	GIRDERS LIFTING DETAILS	
26	BR-22	DECK SLAB REINFORCEMENTS PLAN	
27	BR-23	DECK SLAB REINFORCEMENTS DETAILS	
28	BR-24	RAILING DETAILS	
29	BR-25	RAIN WATER DOWN SPOT DETAILS	
30	BR-26	BEARING AND EXPANSION JOINT DETAILS	
		PROTECTION WORK DRAWINGS	
31	BR-27	WING WALL AND CUTTOFF WALLS DETAILS	

BRIDGE DRAWINGS SHEET INDEX

SHEET NO	DRAWING NO	SHEET TITLE	REMARKS
		BAR BENDING SCHEDULES	
32		BAR BENDING SCHEDULE FOR ONE ABUTMENT AND PILE	
33		BAR BENDING SCHEDULE FOR ONE GIRDER AND ONE SPAN DECK SLAB	

LEGEND AND ABBREVIATION

(IN ELEVATION OR SECTION) FINISHED SURFACE ELEVATION

CL	CENTERLINE
H.S	HINGE SUPPORT
F.S	FREE SUPORT
E.J	EXPANSION JOINT
C.J	CONSTRUCTION JOINT
E/F	EARTH FACE
W/F	WATER FACE
AF	ABUTMENT FOOTING
AB	ABUTMENT BACK/ BALLAST WALL
	ABUTMENT END WALL
	RETAINING BLOCK
AW	ABUTMENT WING WALL
APS	APPROACH SLAB SUPORT
AP	APPROACH SLAB
CF	COUNTERFORT
ABS	ABUTMENT BEARING SEAT
DS	DECK SLAB
FP	FOOT PATH

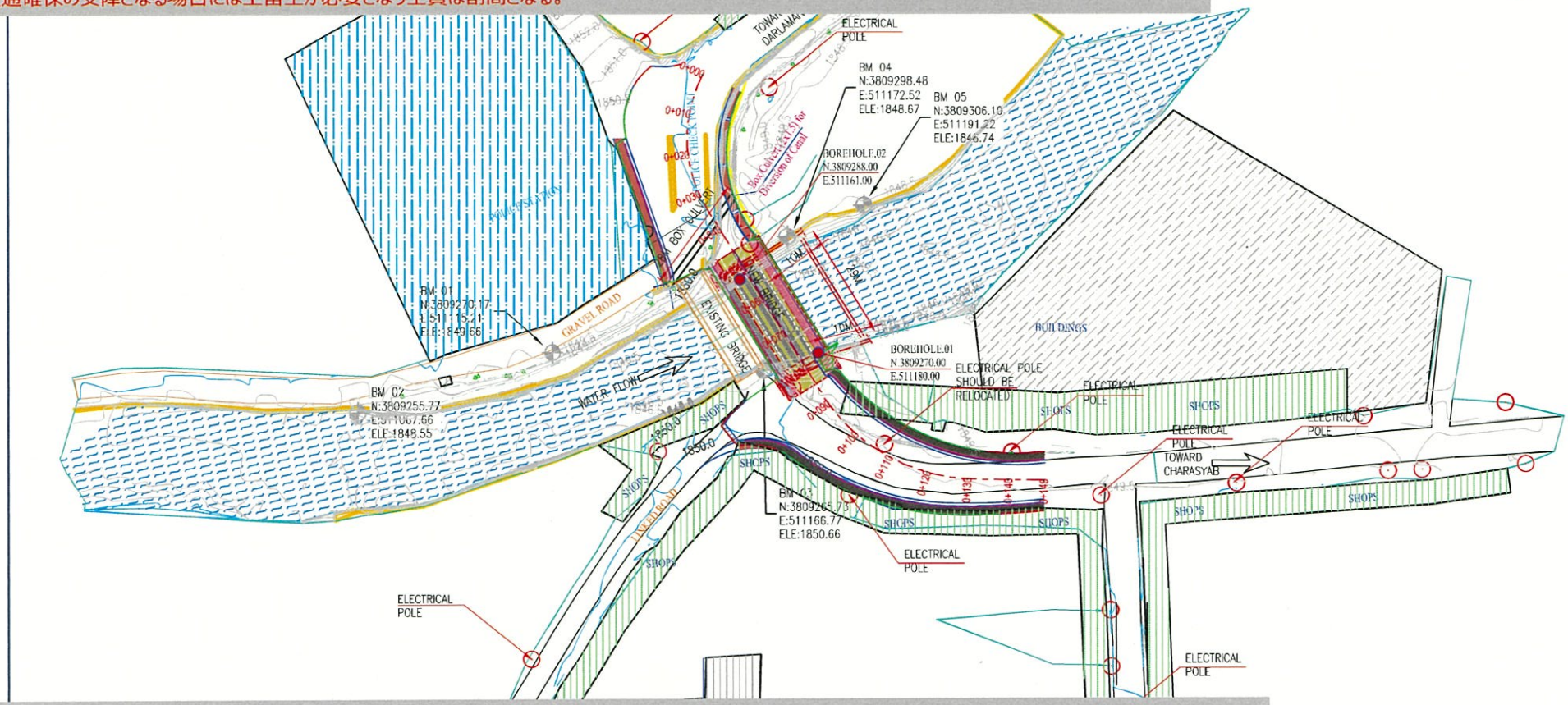
DB	DECK BARRIER
DBT	DECK BOTTOM TRANSVERSE
DTT	DECK TOP TRANSVERSE
DBL	DECK BOTTOM LONGITUDINAL
DTL	DECK TOP LONGITUDINAL
GI	GALVANIZED IRON
G	GIRDER
CG	CROSS GIRDER
WW	WING WALL
SEC.	SECTION
BR	BRIDGE

①LOCATION MAP 1/25,000程度の縮尺で、橋の位置を示す図面を追加する必要がある。
これは、Kabul Cityの状況を知らない海外のエンジニアに、周辺地域も含めて知ってもらうため。

①CROOS BEAM追加すべき

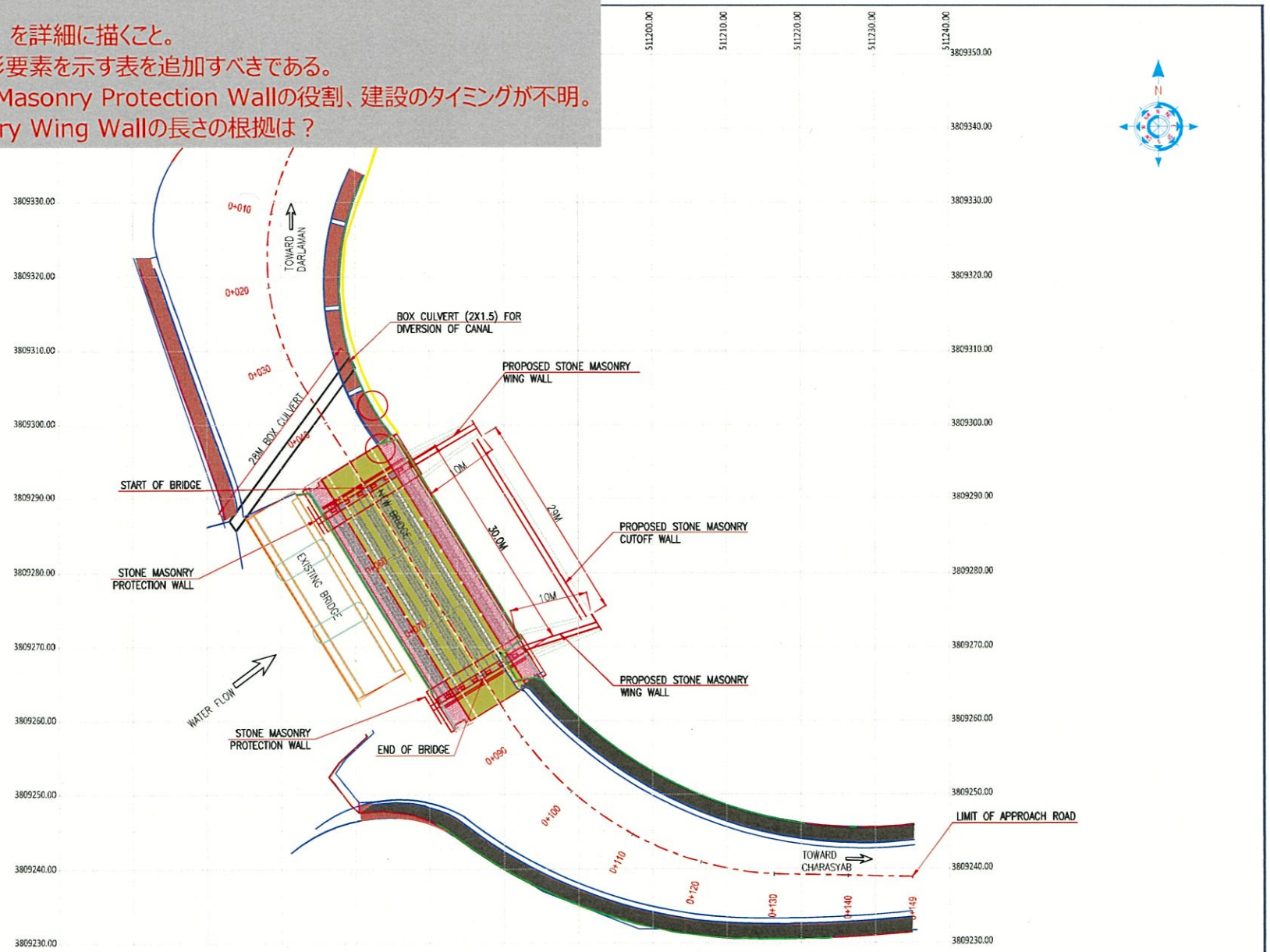
[redacted]

①平面線形が既設との接続部で折れているため、設計速度を明示し妥当性を再度検証すべき。
②衛星写真を見るとA2側に既設の建築物の他両サイドに移設が必要なelectric poleがあるが、撤去は可能なのか？撤去費用はどこが負担するのか？
★③A1側の既設水路の用途を確認すべき。その他に確保すべき流量や主に使用する時期などの確認も必要である。
この水路はA1背面に設けるボックスカルバートに切り替えを行う計画である。しかし、その建設には既設道路を通行止めが必須であると考えられ、
施工計画書と矛盾する。建設時に通行止めにしないために、既設水路をA1背面へのボックスカルバート築造によって確保するのではなく、
新しい橋梁の橋台タイプを橋台の中に水路通すrigid frame式橋台に変更するのがよい。この方が施工性、維持管理、コストの面で有利となると考えられる。
★④橋台築造時の掘削方法を明確にすべきである。オープン掘削の場合、現道交通の確保が困難と思われるため掘削線を描いて確認すべきである。
現道交通確保の支障となる場合には土留工が必要となり工費は割高となる。



★⑤既設橋台との取り合いが不明なので、離隔がわかるように記載すべきである。既設の下部工位置（特に橋台の平面位置や底面の標高）を明示すべきである。
⑥既設橋撤去時の河川沿道路の交通確保はどうなっているのか？
⑦既設橋撤去時に橋詰部の店舗に支障しないか？
⑧施工時に左岸のpolice stationや右岸のbuildingsへのアクセスは確保されているのか？
★⑨架橋位置の川幅がその上流や下流より狭いと考えられる。橋台の位置は上流や下流の川幅に対して河川に橋台が入らないように設定すべきである。
★⑩橋梁端部は南側の川沿い道路のアクセスを考慮した交差点形状に基づき拡幅すべき。

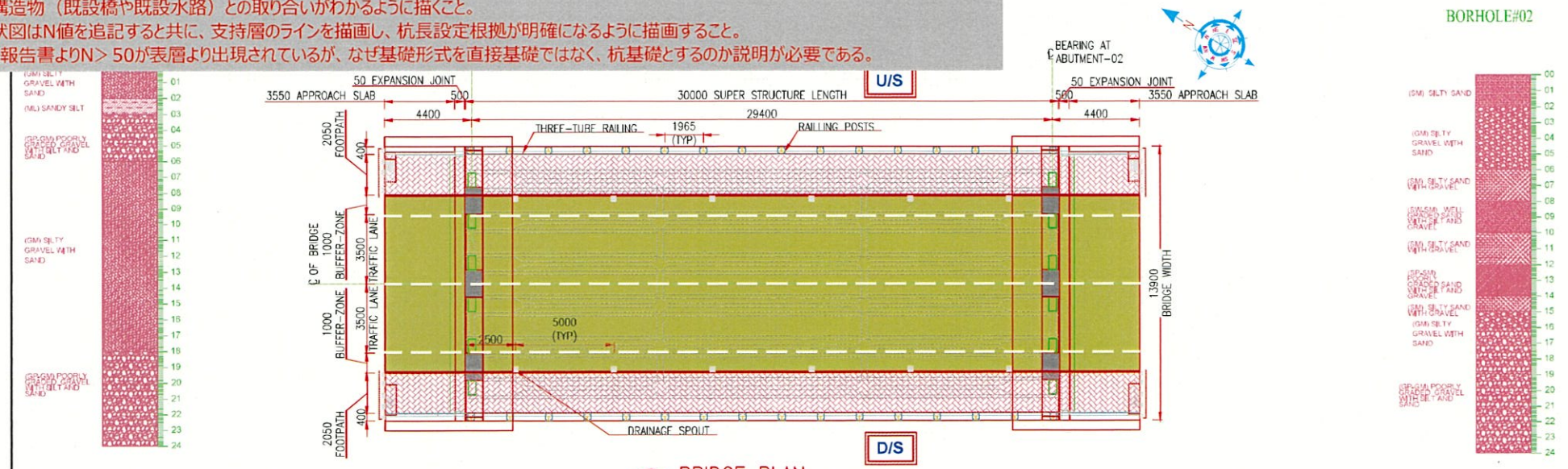
①図の目的が不明。
②既設構造物（橋梁、水路）を詳細に描くこと。
③道路線形の主点座標と線形要素を示す表を追加すべきである。
④既設橋との間にあるStone Masonry Protection Wallの役割、建設のタイミングが不明。
⑤Proposed Stone Masonry Wing Wallの長さの根拠は？



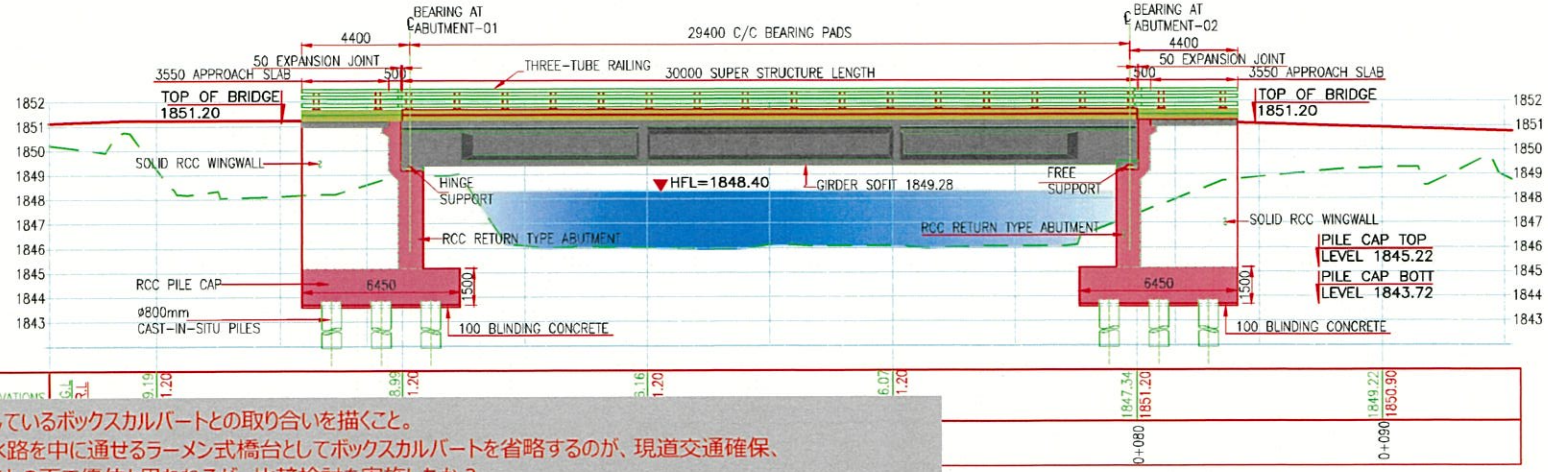
1 BRIDGE SITE PLAN
SCALE 1:500

[redacted]

①U/S, D/Sを逆に修正すべき。
②橋台のパラペットの前面ラインに、道路中心線の測点番号を表示するとともに、道路中心線とパラペットの前面ラインの交角を表示する必要がある。
③既設構造物（既設橋や既設水路）との取り合いがわかるように描くこと。
★④柱状図はN値を追記すると共に、支持層のラインを描画し、杭長設定根拠が明確になるように描画すること。
また地質報告書よりN＞50が表層より出現されているが、なぜ基礎形式を直接基礎ではなく、杭基礎とするのか説明が必要である。



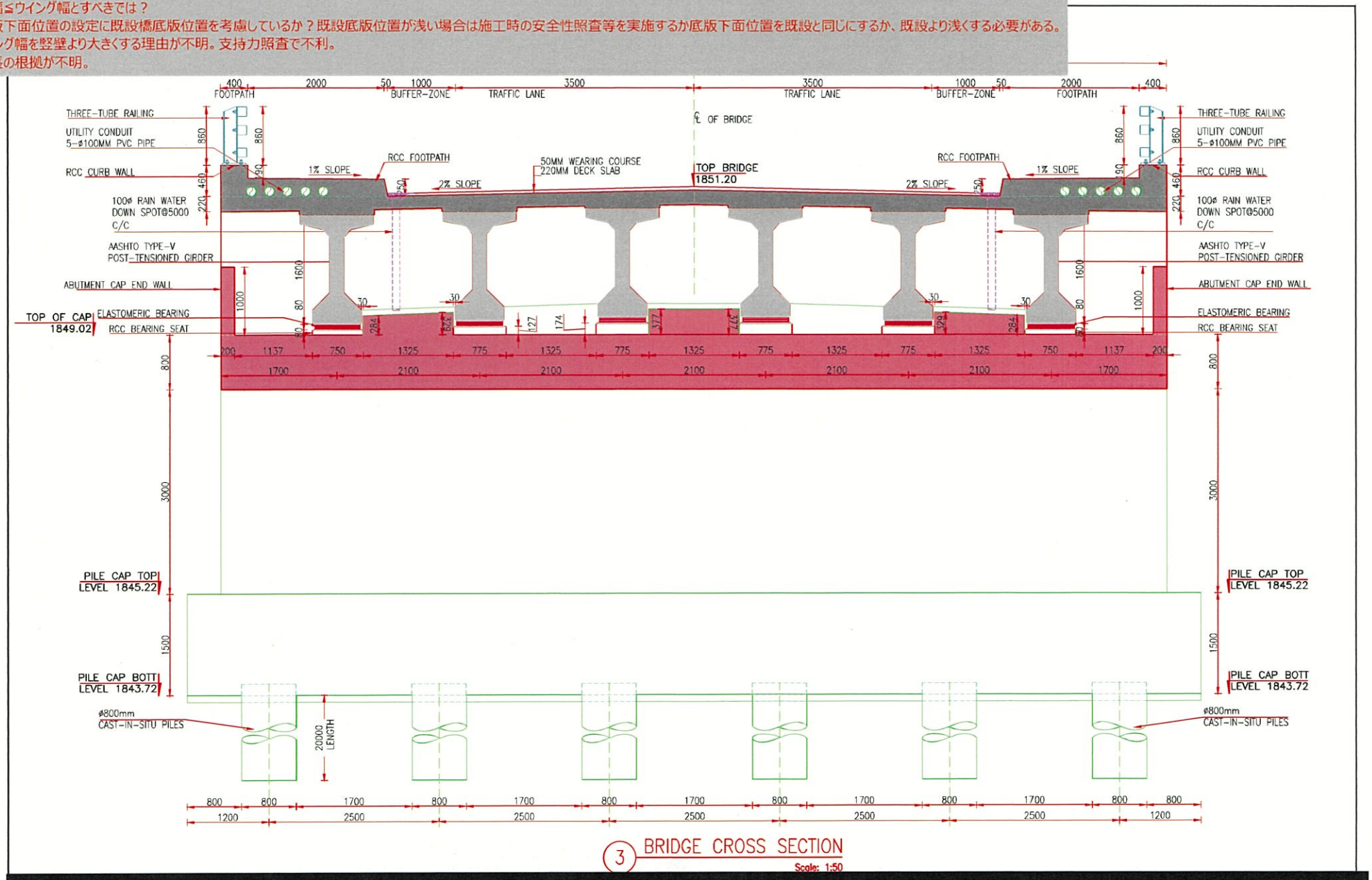
1 BRIDGE PLAN
Scale: 1:200



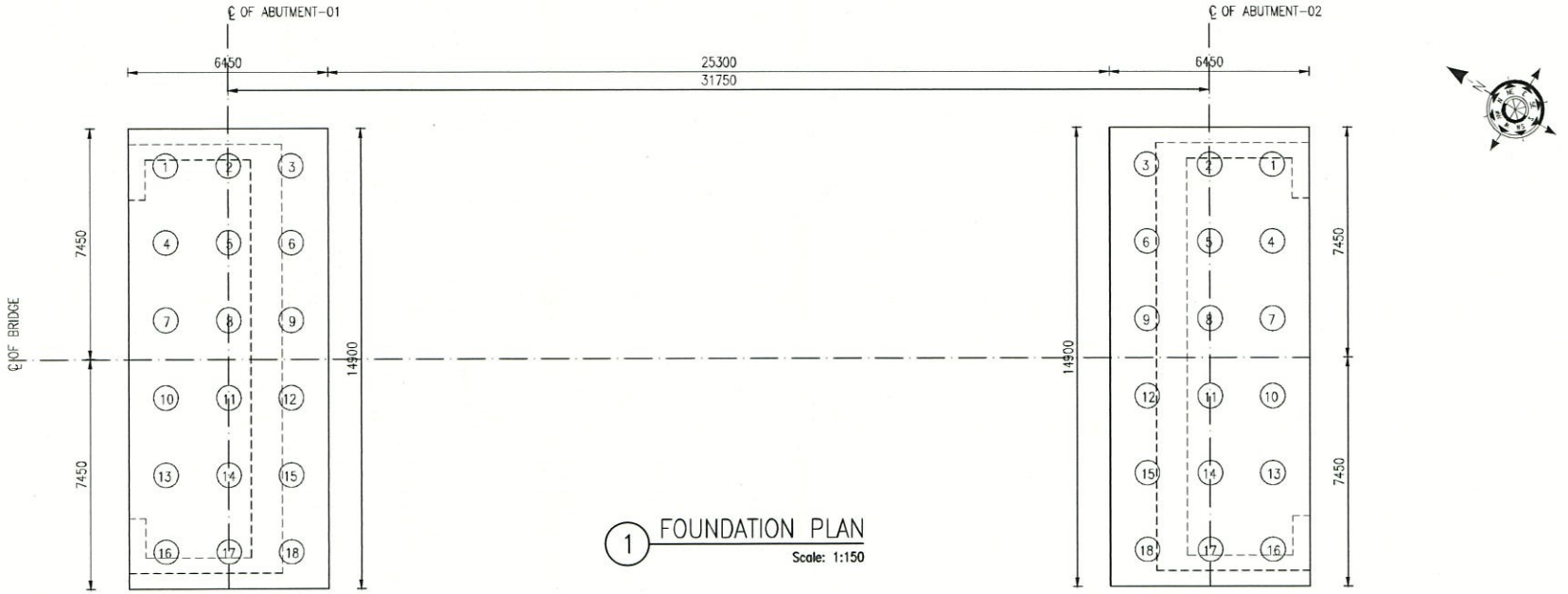
INAL SECTION
Scale: 1:200

⑤A1橋台背面に計画しているボックスカルバートとの取り合いを描くこと。
★⑥A1橋台の形式は水路を中に通せるラーメン式橋台としてボックスカルバートを省略するのが、現道交通確保、維持管理軽減およびコストの面で優位と思われるが、比較検討を実施したか？
★⑦底版下面の標高の決定根拠が不明。施工中も供用する既設橋基礎下面の標高とあわせる必要はないのか？
★⑧橋台位置の決定根拠が不明。A1橋台は護岸背面に位置しているが、A2橋台は河川断面を侵しているように見受けられる。

★①既設橋との取り合いを明示すること。
②河川の流下方向を明示すること。
③高欄幅≦ウイング幅とすべきでは？
★④底版下面位置の設定に既設橋底版位置を考慮しているか？既設底版位置が浅い場合は施工時の安全性照査等を実施するか底版下面位置を既設と同じにするか、既設より浅くする必要がある。
⑤フーチング幅を竪壁より大きくする理由が不明。支持力照査で不利。
★⑥杭長の根拠が不明。



3 BRIDGE CROSS SECTION
Scale: 1:50



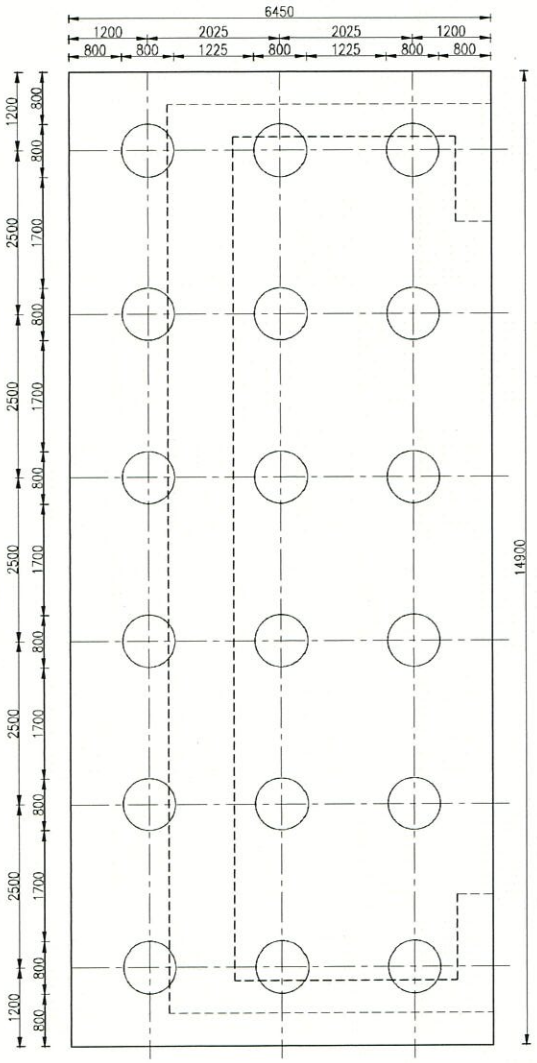
1 FOUNDATION PLAN

Scale: 1:150

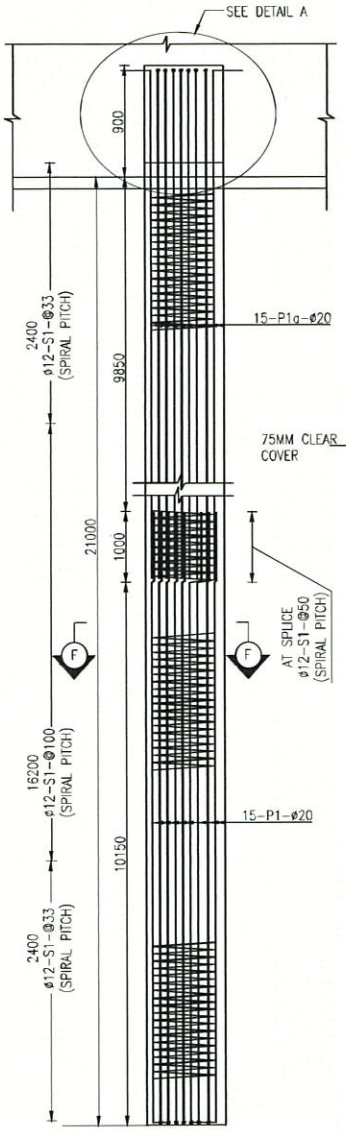
BRIDGE LAYOUT COORDINATE TABLE				
MEMBER	ABUTMENT-01		ABUTMENT-02	
	NORTHING	EASTING	NORTHING	EASTING
CENTER OF ABUTMENT	3809292.147	511160.968	3809265.105	511177.597
PIER-01	3809297.148	511165.229	3809266.659	511183.994
PIER-02	3809295.423	511166.291	3809268.384	511182.933
PIER-03	3809293.699	511167.352	3809270.108	511181.872
PIER-04	3809295.837	511163.100	3809265.349	511181.865
PIER-05	3809294.113	511164.162	3809267.073	511180.804
PIER-06	3809292.388	511165.223	3809268.798	511179.743
PIER-07	3809294.527	511160.971	3809264.038	511179.736
PIER-08	3809292.802	511162.033	3809265.763	511178.675
PIER-09	3809291.078	511163.094	3809267.488	511177.614
PIER-10	3809293.216	511158.842	3809262.728	511177.607
PIER-11	3809291.492	511159.903	3809264.453	511176.546
PIER-12	3809289.767	511160.965	3809266.177	511175.485
PIER-13	3809291.906	511156.713	3809261.418	511175.478
PIER-14	3809290.181	511157.774	3809263.142	511174.417
PIER-15	3809288.457	511158.836	3809264.867	511173.355
PIER-16	3809290.595	511154.583	3809260.107	511173.349
PIER-17	3809288.871	511155.645	3809261.831	511172.287
PIER-18	3809287.146	511156.706	3809263.556	511171.226

①PIERではなくPILEの間違いでは？

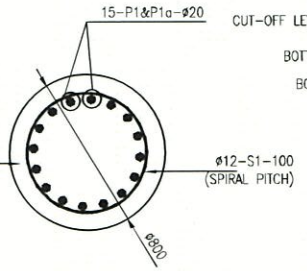
[redacted]



2 PILES ARRANGEMENT PLAN
Scale: 1:75



3 REINFORCMENT DETAILS OF PILE
Scale: 1:50



4 SECTION F-F
Scale: 1:20

5 DETAIL "A"
Scale: 1:20

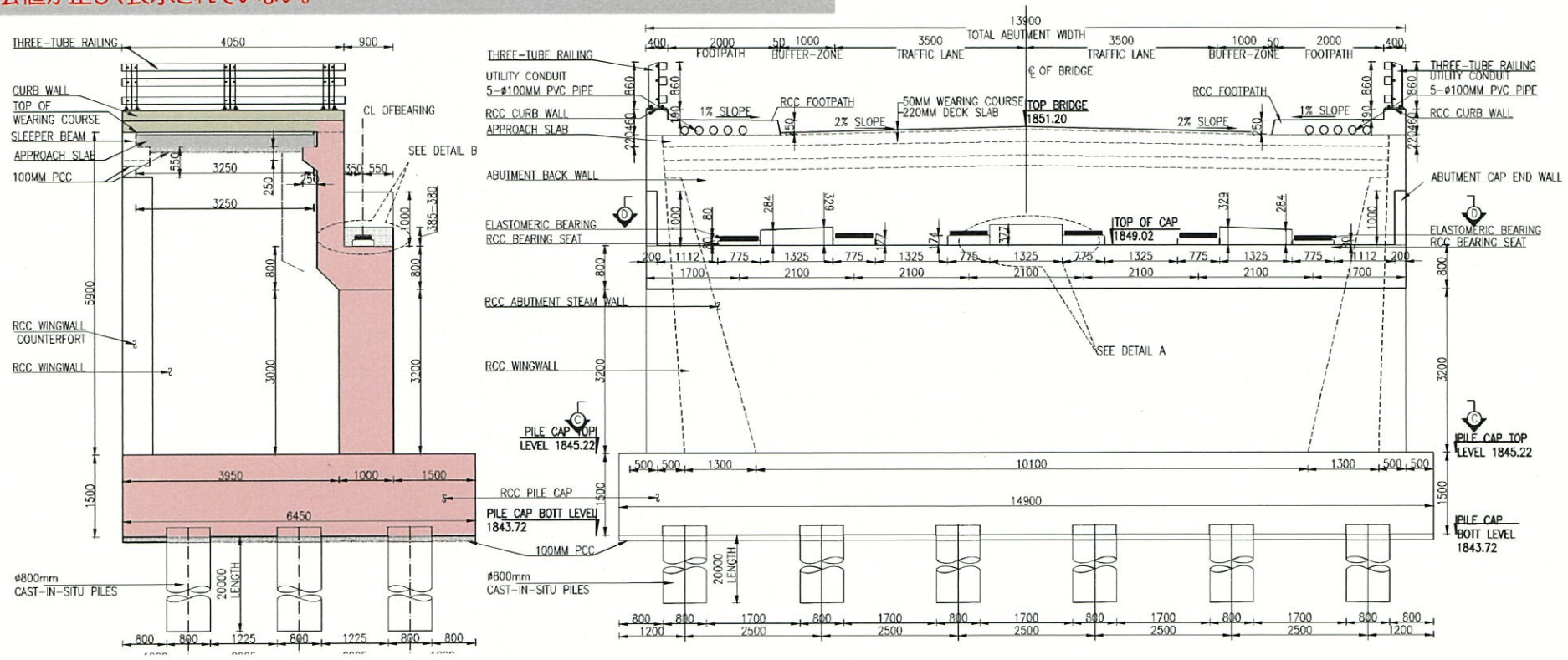
NOTE:

1. TREMIE CONCRETING IS TO BE ADOPTED WHENEVER

7. TEST PILE REINFORCEMENT CONFIGURATION APPLE TO TEST AND PERMANENT PILES.

①杭間隔の根拠が不明。
★②ボーリング柱状図との関係を図示すべきである。
③橋軸方向には群杭の影響が考慮されているか？
④杭主鉄筋の数をチェック。旗揚げ15本≠図面16本
⑤杭帯鉄筋がフーチング内にない理由が不明。
⑥スパイラル鉄筋は段落とし可能では？
⑦杭主鉄筋は段落とし可能では？

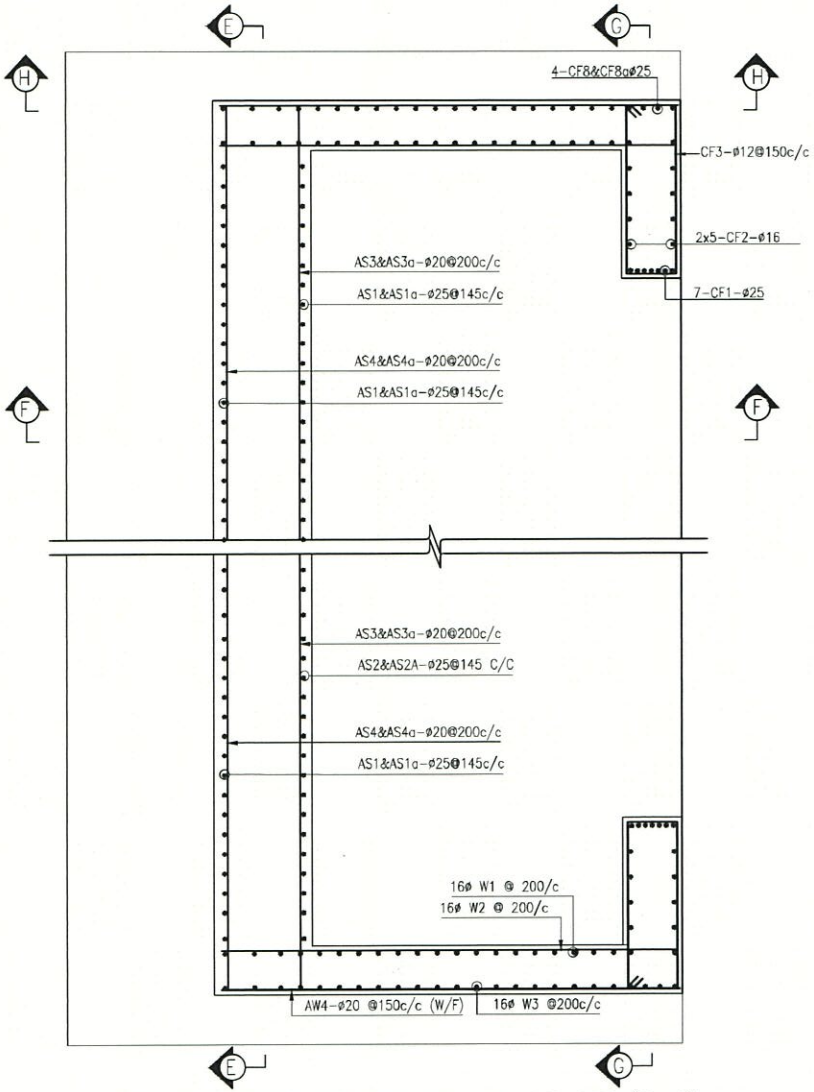
①Bearing seatは支承端から45°の応力分散をカバーする幅が必要。
②支持力照査上有利となるように、フーチング幅はstem wallの幅に合わせる方がよい。
また、底版端部から杭中心は1.0m、杭間隔は2.5m以上とすべき。
③Approach Slabの設置範囲および長さの決定根拠が不明。(歩道部は不要)
④橋台高さがどこを抑えてセットしたのか不明。
⑤寸法値が正しく表示されていない。



① SECTION (A–A)
Scale: 1:75

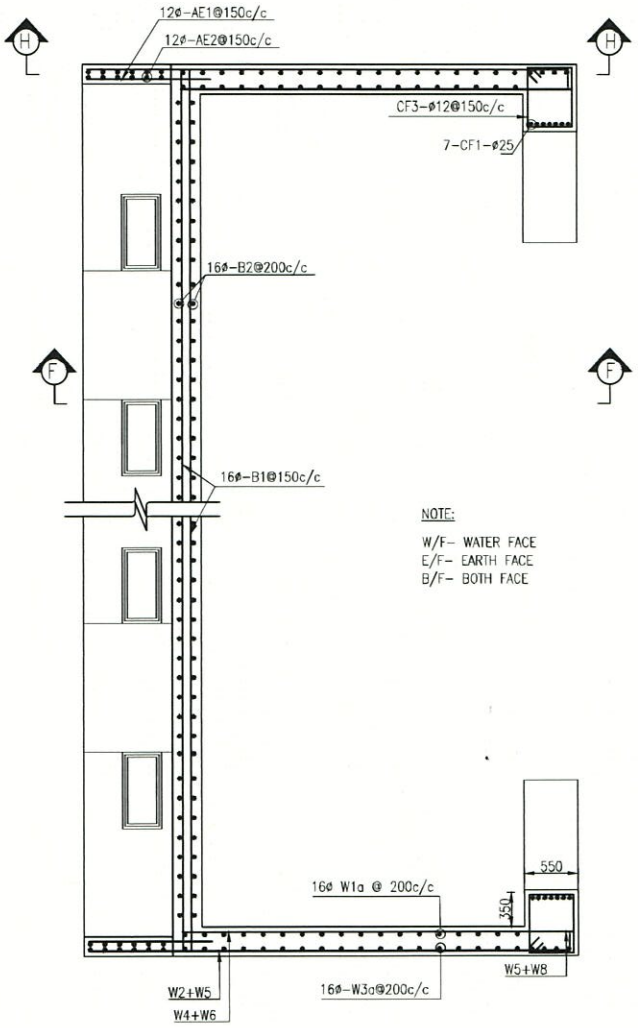
② FRONT ELEVATION OF ABUTMENT (B–B)
Scale: 1:75

①ウイング端部の鉛直方向鉄筋は何故密配置なのか？コンクリートの充填不足が懸念される



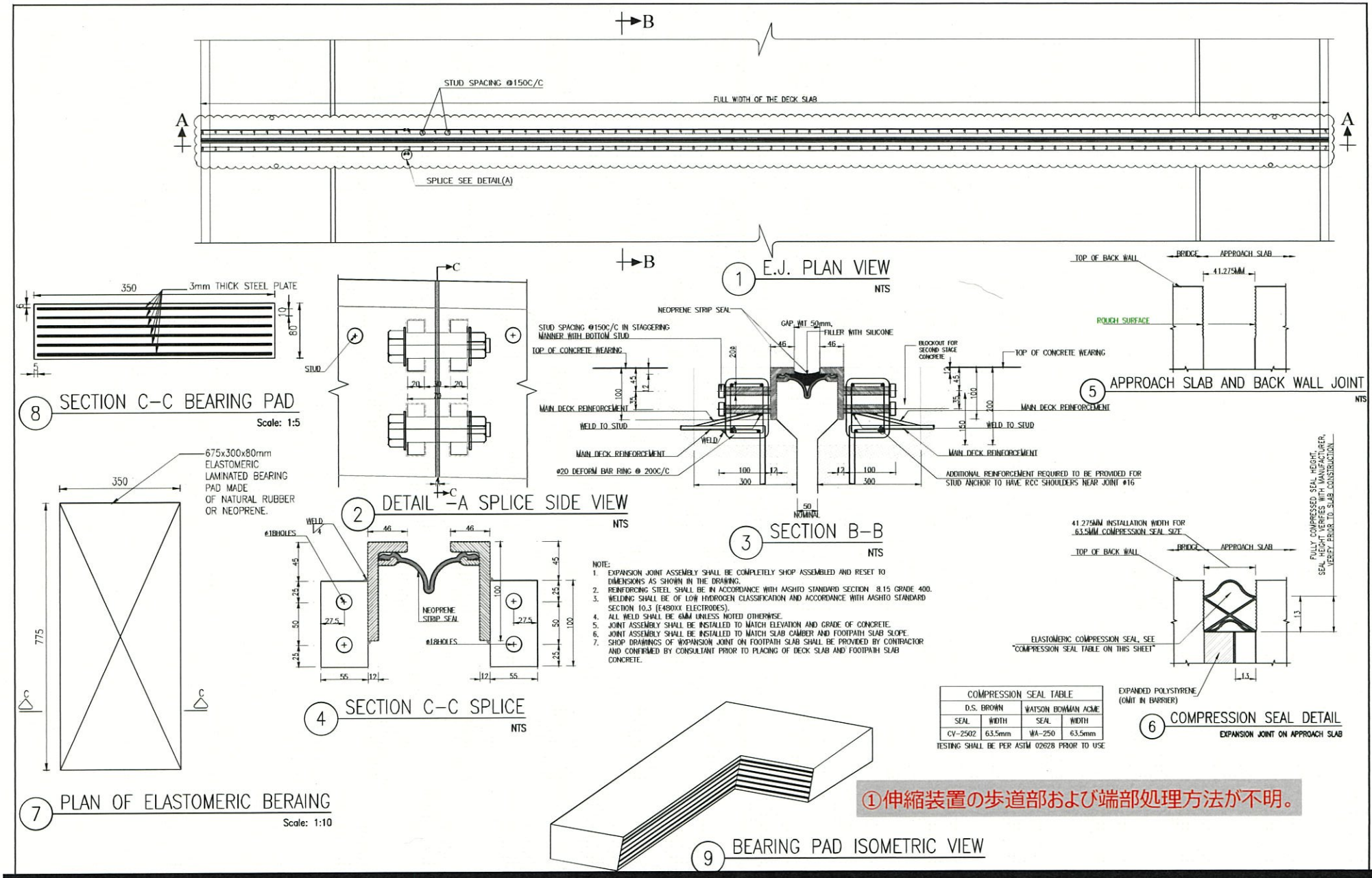
1 REINFORCEMENT OF DETAILS OF SEC.(C-C)

Scale: 1:50



2 REINFORCEMENT OF DETAILS OF SEC.(D-D)

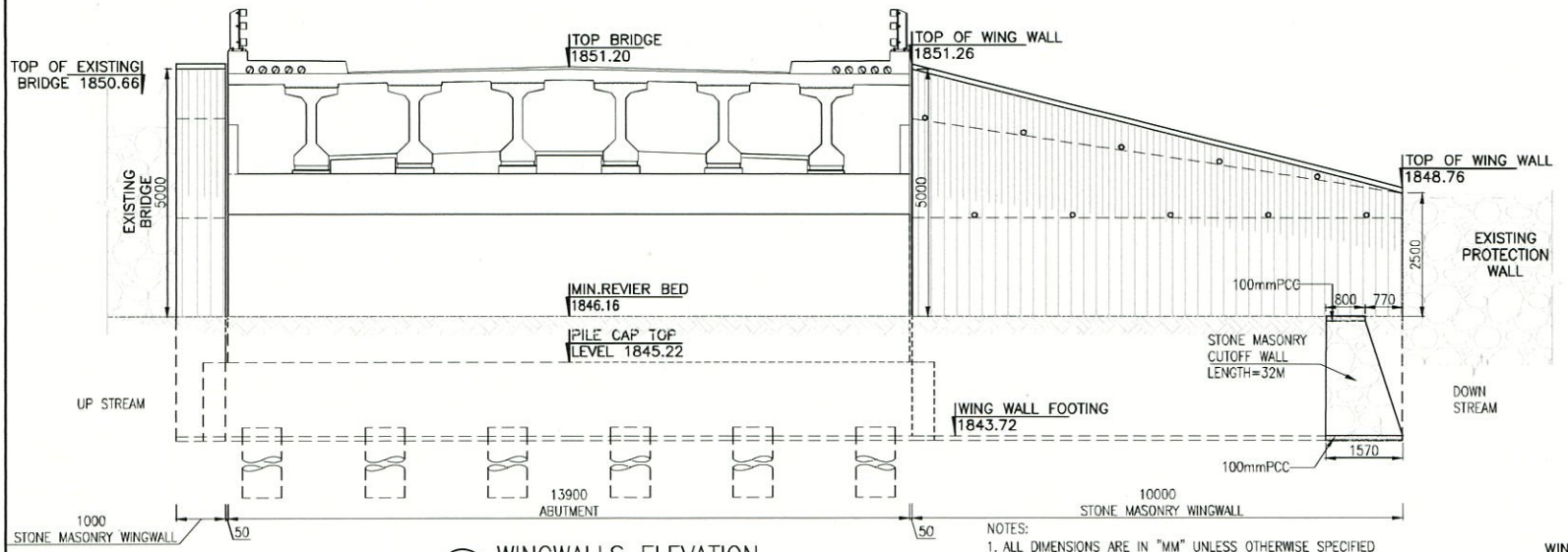
Scale: 1:50



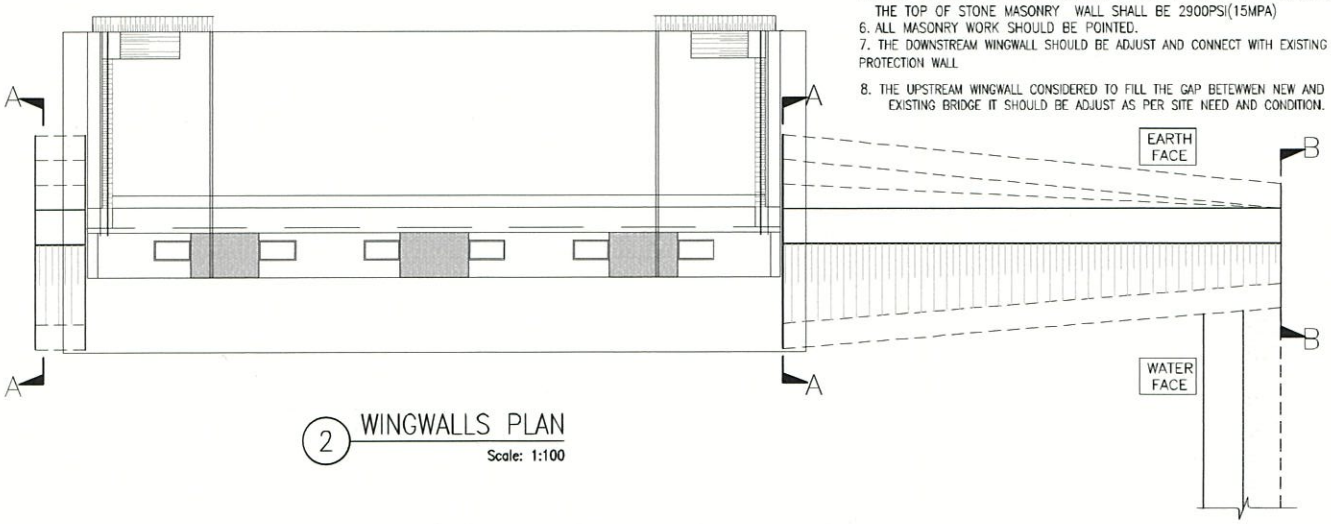
①伸縮装置の歩道部および端部処理方法が不明。

[redacted]

①既設橋の撤去を考慮した護岸の配置とすべきである。

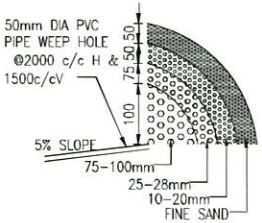


1 WINGWALLS ELEVATION
Scale: 1:100

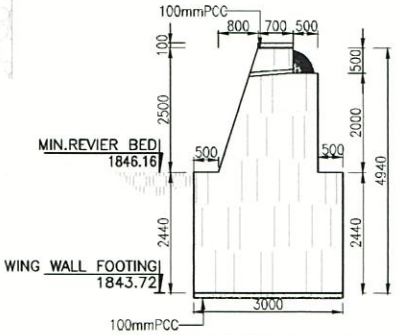


2 WINGWALLS PLAN
Scale: 1:100

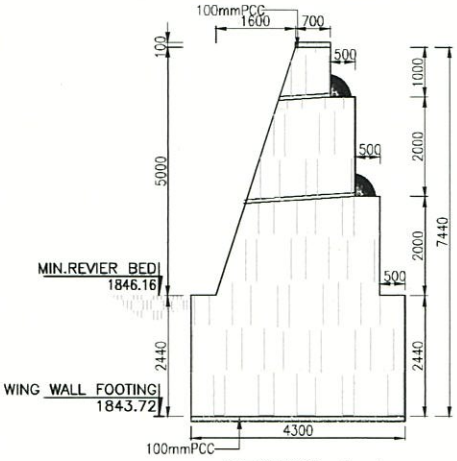
NOTES:
1. ALL DIMENSIONS ARE IN "MM" UNLESS OTHERWISE SPECIFIED
2. ORDINATION AND LENGTH OF ALL PROPOSED WINGWALL TO BE ADJUST AS PER FIELD NEED AND CONDITION CONDITION.
3. 28DAY STANDARD CYLINDER CRUSHING STRENGTH FOR BLINDING CONCRETE UNDER STONE MASONRY WALL SHALL BE 2175PSI(15MPA)
4. 28DAY STANDARD CYLINDER CRUSHING STRENGTH FOR PLAIN CONCRETE ON THE TOP OF STONE MASONRY WALL SHALL BE 2900PSI(15MPA)
6. ALL MASONRY WORK SHOULD BE POINTED.
7. THE DOWNSTREAM WINGWALL SHOULD BE ADJUST AND CONNECT WITH EXISTING PROTECTION WALL
8. THE UPSTREAM WINGWALL CONSIDERED TO FILL THE GAP BETEWWEN NEW AND EXISTING BRIDGE IT SHOULD BE ADJUST AS PER SITE NEED AND CONDITION.



5 WEEP HOLE DETAILS
Scale: NTS



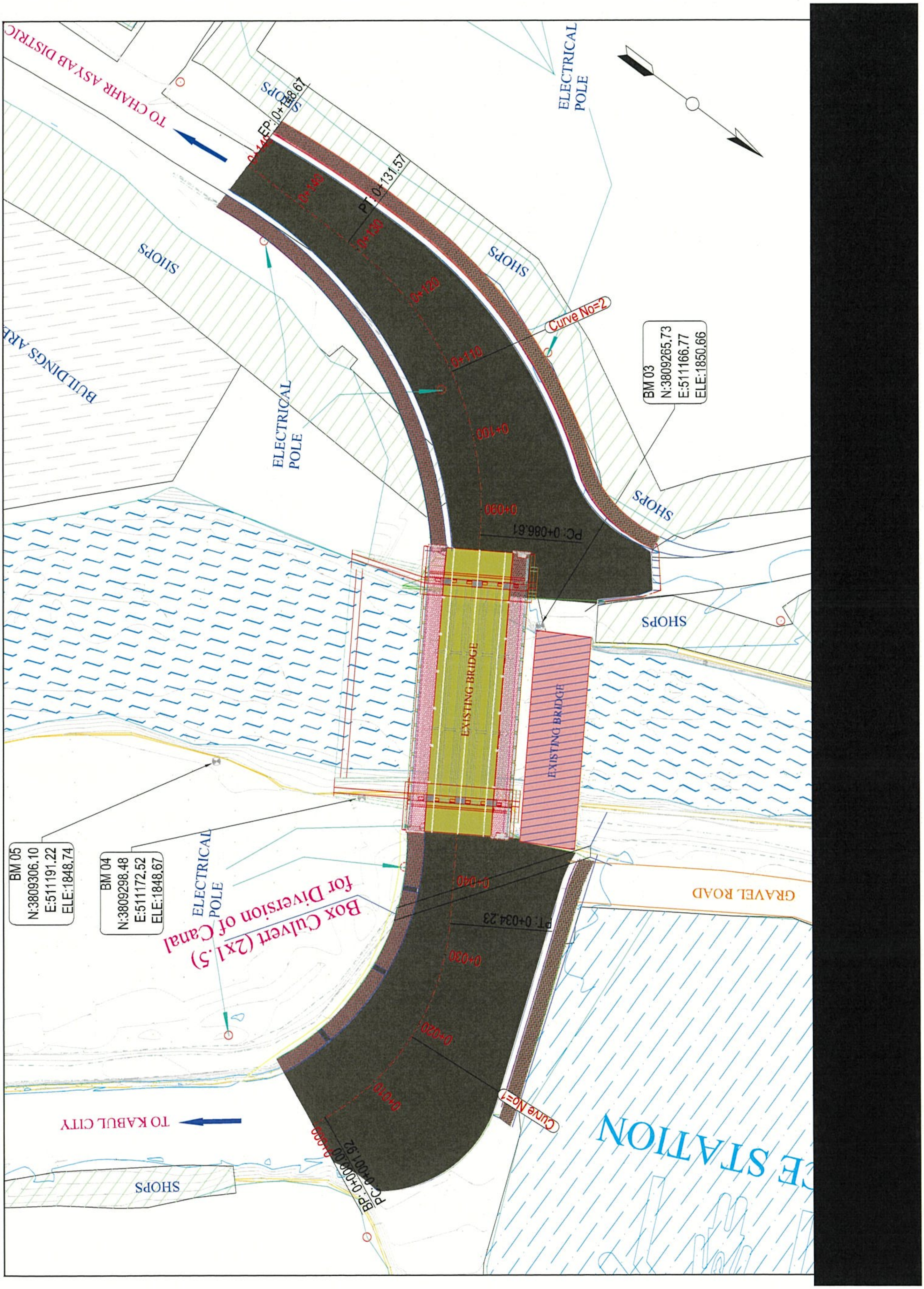
4 SECTION B-B
Scale: 1:100

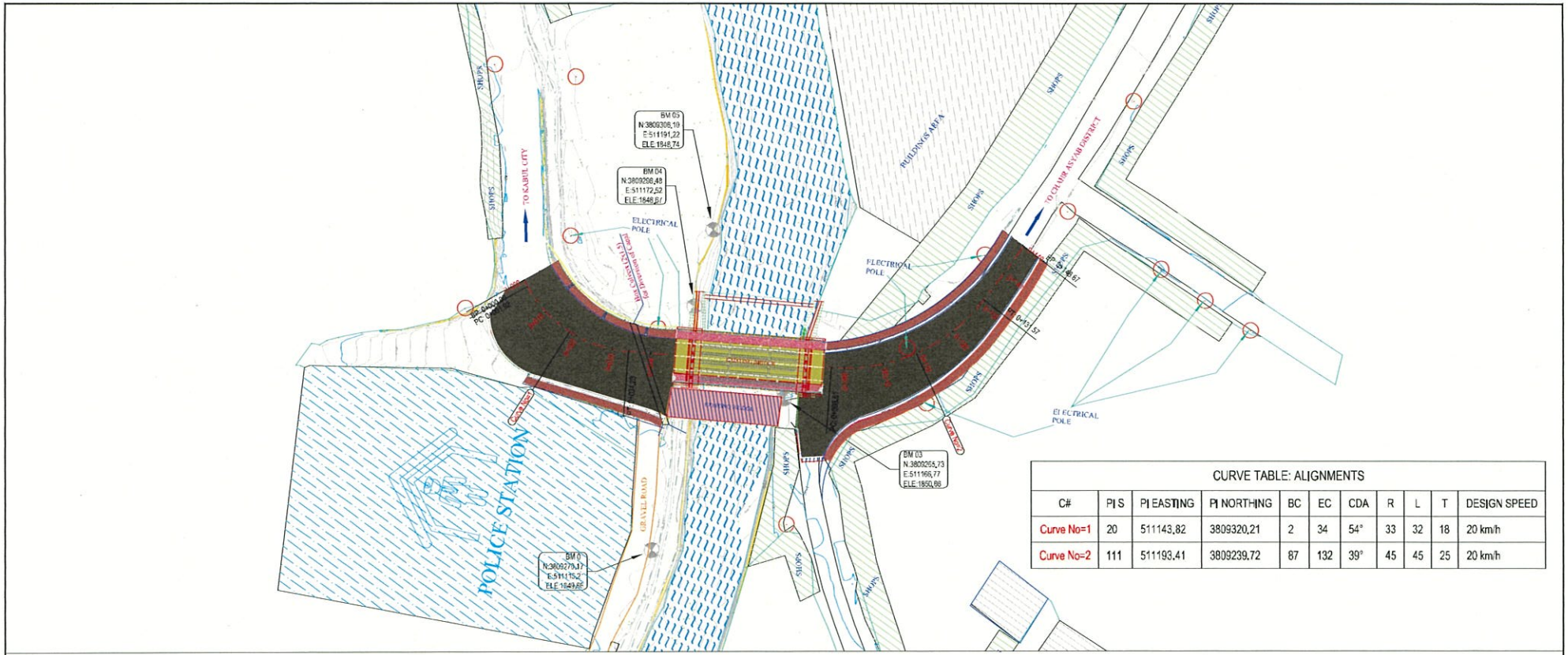


3 SECTION A-A
Scale: 1:100

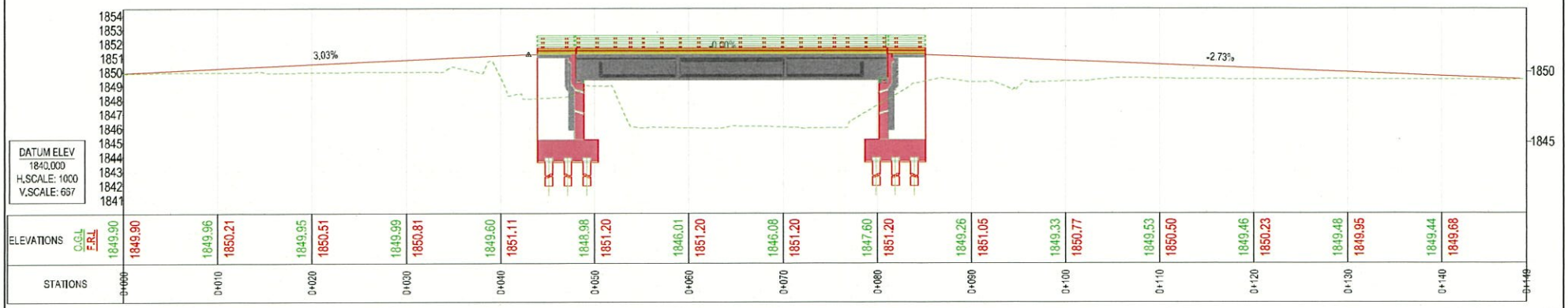
①ボックスカルバートの図面を追加
②既設水路の撤去、復旧の図面が必要。
③(Approach Road Plan)方位の向きが他の図面と不整合。
★④橋梁端部は南側の川沿い道路のアクセスを考慮した交差点形状に基づき拡幅すべき。
⑤(縦断図)縦断曲線を考慮すること。既設橋梁の縦断や桁下高がわかるように描画すること。

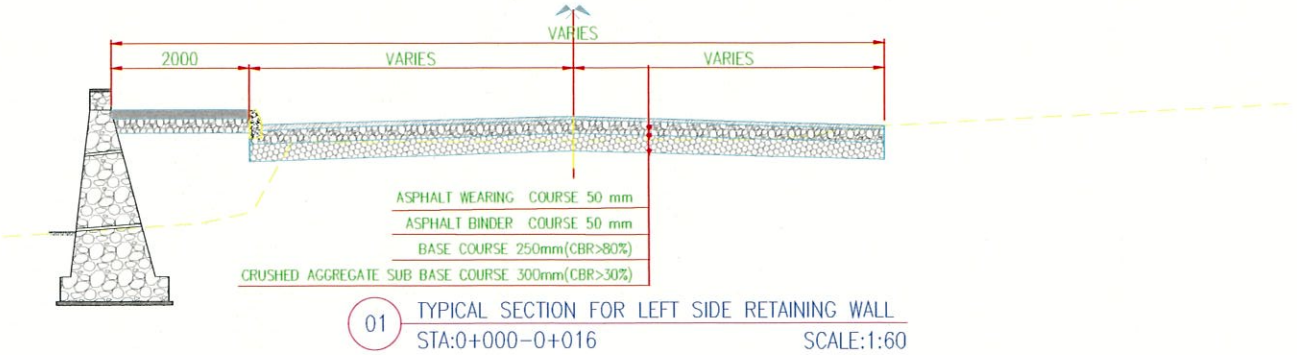
Approach Road Drawings


TO CHAHR ASYAB DISTRIC
SHOPS
EP: 0+148.67
PT: 0+131.57
ELECTRICAL POLE
Curve No=2
BM 03
N:3809265.73
E:511166.77
ELE:1850.66
BUILDINGS ARE
PC: 0+086.61
EXISTING BRIDGE
EXISTING BRIDGE
BM 05
N:3809306.10
E:511191.22
ELE:1848.74
BM 04
N:3809298.48
E:511172.52
ELE:1848.67
Box Culvert (2x1.5)
for Diversion of Canal
GRAVEL ROAD
PT: 0+034.23
Curve No=1
TO KABUL CITY
BP: 0+000.00
PC: 0+001.92
CE STATION

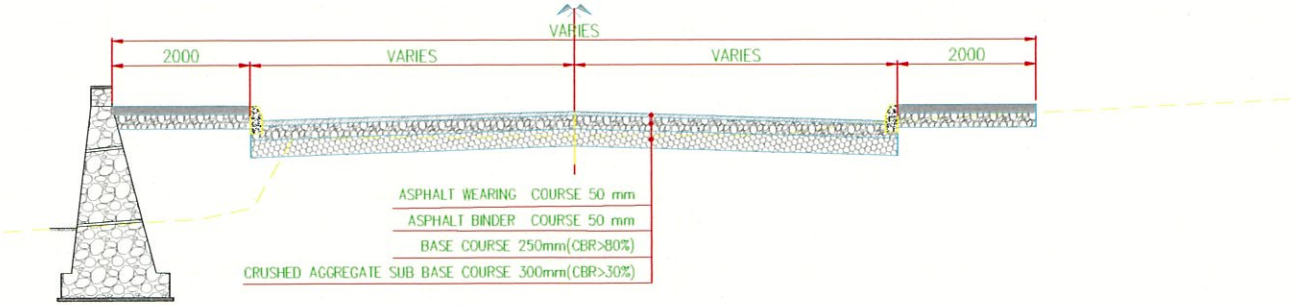


CURVE TABLE: ALIGNMENTS										
C#	PI S	PI EASTING	PI NORTHING	BC	EC	CDA	R	L	T	DESIGN SPEED
Curve No=1	20	511143,82	3809320,21	2	34	54°	33	32	18	20 km/h
Curve No=2	111	511193,41	3809239,72	87	132	39°	45	45	25	20 km/h

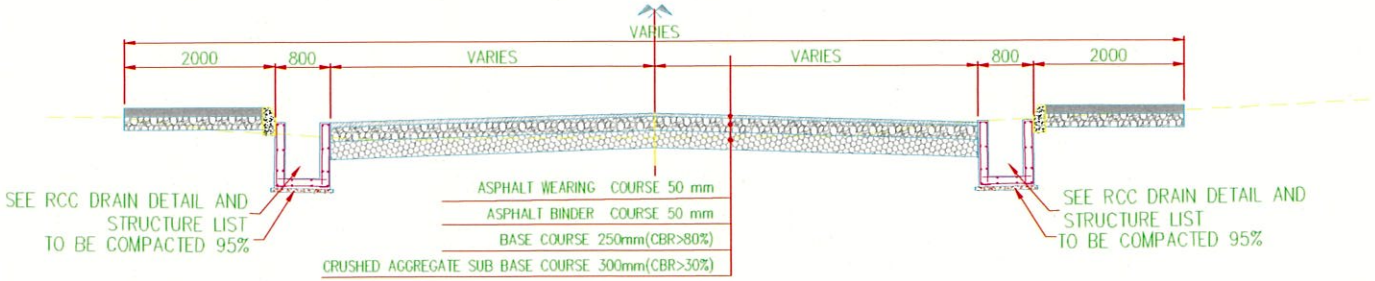




01 TYPICAL SECTION FOR LEFT SIDE RETAINING WALL
STA:0+000-0+016 SCALE:1:60



02 TYPICAL SECTION FOR LEFT SIDE RETAINING WALL AND RIGHT SIDE FOOT PHATH
STA:0+016-0+045 SCALE:1:60



03 TYPICAL SECTION FOR BOTH SIDE RCC DRAIN WITH FOOT PATH
STA:0+085-0+149 SCALE:1:60

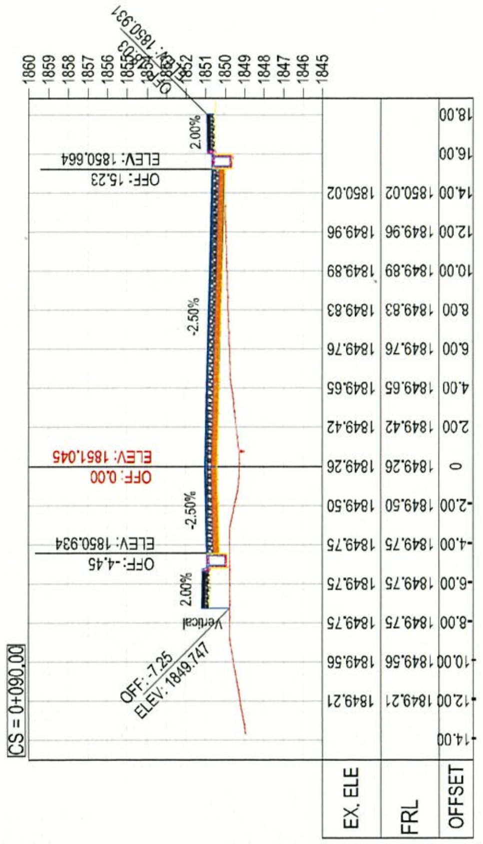
[redacted]

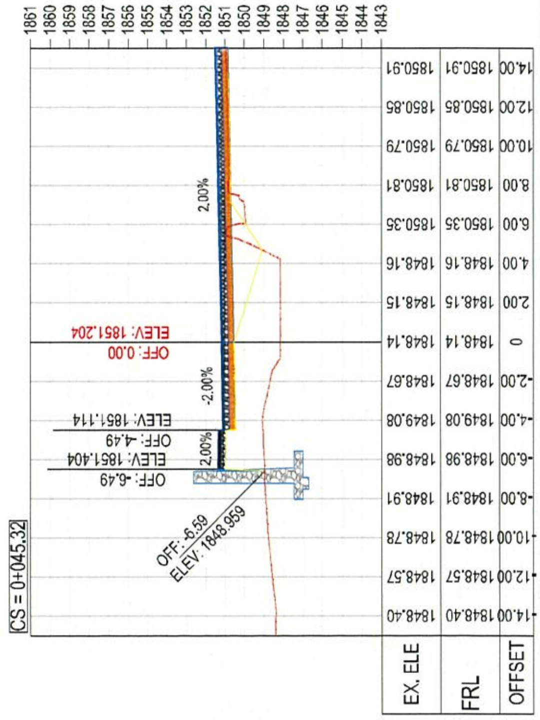
CS = 0+000.00
OFF: -10.14
ELEV: 1848.030
OFF: -10.04
ELEV: 1850.032
OFF: -8.04
ELEV: 1849.742
OFF: 0.00
ELEV: 1849.903
OFF: 5.95
ELEV: 1850.022
OFF: 5.95
ELEV: 1850.046
2.00%
-2.00%
2.00%
OFFSET
FRL
EX. ELE
14.00 1849.52 1849.52
12.00 1848.08 1848.08
10.00 1848.03 1848.03
8.00 1850.27 1850.27
6.00 1849.78 1849.78
4.00 1849.82 1849.82
2.00 1849.86 1849.86
0 1849.90 1849.90
2.00 1849.95 1849.95
4.00 1850.00 1850.00
6.00 1850.08 1850.08
8.00 1849.98 1849.98
10.00 1851.64 1851.64
12.00
14.00

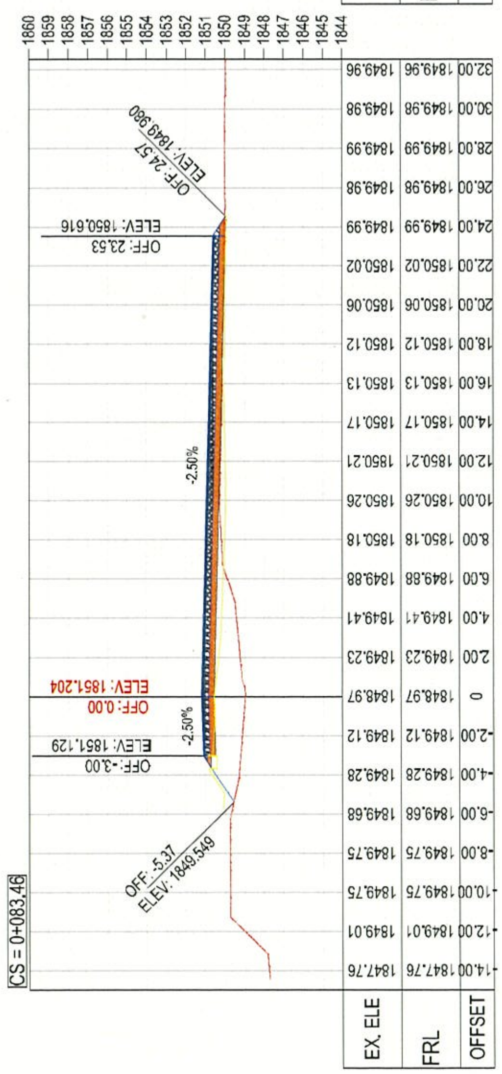
CS = 0+010.00
OFF: -10.15
ELEV: 1848.163
OFF: -10.05
ELEV: 1850.335
OFF: -8.05
ELEV: 1850.045
OFF: 0.00
ELEV: 1850.206
OFF: 15.51
ELEV: 1850.516
OFF: 15.51
ELEV: 1850.736
2.00%
-2.00%
2.00%
OFFSET
FRL
EX. ELE
14.00 1849.34 1849.34
12.00 1848.55 1848.55
10.00 1848.17 1848.17
8.00 1850.73 1850.73
6.00 1849.82 1849.82
4.00 1849.87 1849.87
2.00 1849.92 1849.92
0 1849.96 1849.96
2.00 1850.01 1850.01
4.00 1850.13 1850.13
6.00 1850.13 1850.13
8.00 1850.18 1850.18
10.00 1850.23 1850.23
12.00 1850.29 1850.29
14.00 1850.33 1850.33
16.00 1850.45 1850.45
18.00 1850.51 1850.51
20.00 1850.57 1850.57

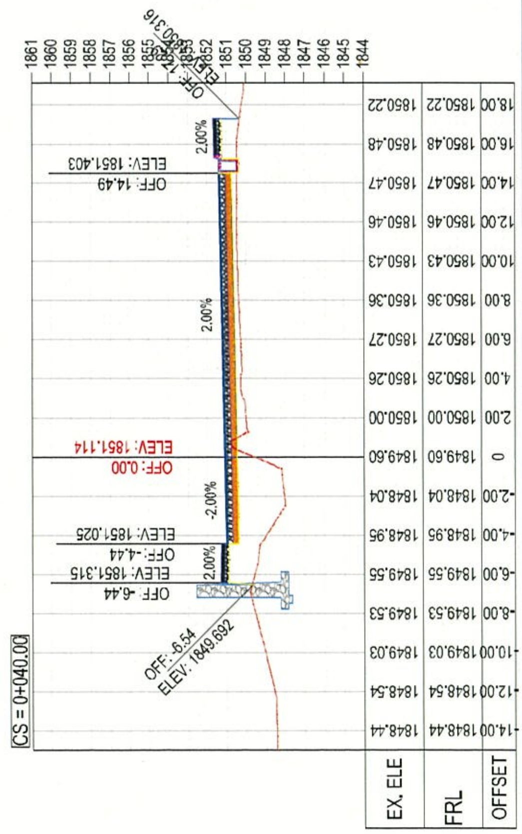
CS = 0+020.00
OFF: -9.52
ELEV: 1847.874
OFF: -9.42
ELEV: 1850.650
OFF: -7.42
ELEV: 1850.360
OFF: 0.00
ELEV: 1850.508
OFF: 13.30
ELEV: 1850.774
OFF: 16.10
ELEV: 1850.7
2.00%
-2.00%
2.00%
OFFSET
FRL
EX. ELE
14.00 1849.38 1849.38
12.00 1849.35 1849.35
10.00 1847.65 1847.65
8.00 1849.87 1849.87
6.00 1849.84 1849.84
4.00 1849.83 1849.83
2.00 1849.89 1849.89
0 1849.95 1849.95
2.00 1850.01 1850.01
4.00 1850.06 1850.06
6.00 1850.10 1850.10
8.00 1850.18 1850.18
10.00 1850.25 1850.25
12.00 1850.24 1850.24
14.00 1850.26 1850.26
16.00 1850.32 1850.32
18.00
20.00

CS = 0+030.00
OFF: -8.18
ELEV: 1847.785
OFF: -8.08
ELEV: 1850.979
OFF: -6.08
ELEV: 1850.689
OFF: 0.00
ELEV: 1850.811
OFF: 12.37
ELEV: 1851.058
OFF: 15.17
ELEV: 1850.8
2.00%
-2.00%
2.00%
OFFSET
FRL
EX. ELE
14.00 1849.18 1849.18
12.00 1849.47 1849.47
10.00 1849.24 1849.24
8.00 1847.79 1847.79
6.00 1848.48 1848.48
4.00 1849.99 1849.99
2.00 1849.97 1849.97
0 1849.99 1849.99
2.00 1850.04 1850.04
4.00 1850.10 1850.10
6.00 1850.15 1850.15
8.00 1850.14 1850.14
10.00 1850.15 1850.15
12.00 1850.17 1850.17
14.00 1850.19 1850.19
16.00 1850.04 1850.04
18.00 1850.01 1850.01


CS = 0+090.00
OFF: 15.23
ELEV: 1850.664
OFF: 0.00
ELEV: 1851.045
OFF: -4.45
ELEV: 1850.934
OFF: -7.25
ELEV: 1849.747
EX. ELE
FRL
OFFSET


CS = 0+045.32
OFF: 0.00
ELEV: 1851.204
OFF: -4.49
ELEV: 1851.114
OFF: -6.49
ELEV: 1851.404
OFF: -6.59
ELEV: 1848.959
EX. ELE
FRL
OFFSET


CS = 0+083.46
OFF: 23.53
ELEV: 1850.616
OFF: 24.57
ELEV: 1849.980
OFF: 0.00
ELEV: 1851.204
OFF: -3.00
ELEV: 1851.129
OFF: -5.37
ELEV: 1849.549
EX. ELE
FRL
OFFSET


CS = 0+040.00
OFF: 14.49
ELEV: 1851.403
OFF: 0.00
ELEV: 1851.114
OFF: -4.44
ELEV: 1851.025
OFF: -6.44
ELEV: 1851.315
OFF: -6.54
ELEV: 1849.692
EX. ELE
FRL
OFFSET

CS = 0+120.00

OFFSET	-14.00	-12.00	-10.00	-8.00	-6.00	-4.00	-2.00	0	2.00	4.00	6.00	8.00	10.00	12.00	14.00
EX. ELE		1849.50	1849.43	1849.33	1849.07	1849.04	1849.38	1849.46	1849.54	1849.63	1849.70	1849.76	1849.85	1849.87	1849.87
FRL		1849.50	1849.43	1849.33	1849.07	1849.04	1849.38	1849.46	1849.54	1849.63	1849.70	1849.76	1849.85	1849.87	1849.87

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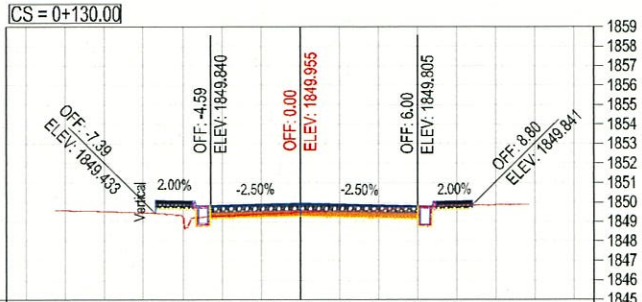

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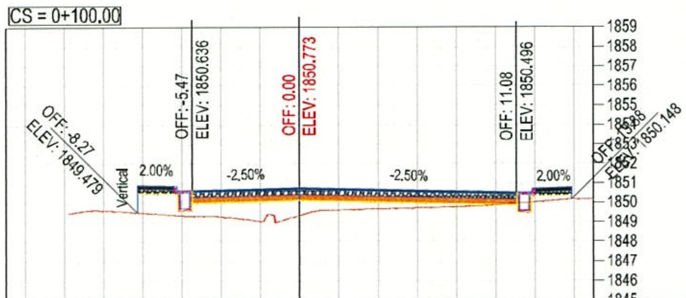
EX. ELE		1849.59	1849.52	1849.45	1849.26	1849.31	1849.40	1849.48	1849.56	1849.61	1849.73	1849.83	1849.86		
FRL		1849.59	1849.52	1849.45	1849.26	1849.31	1849.40	1849.48	1849.56	1849.61	1849.73	1849.83	1849.86		

CS = 0+100.00



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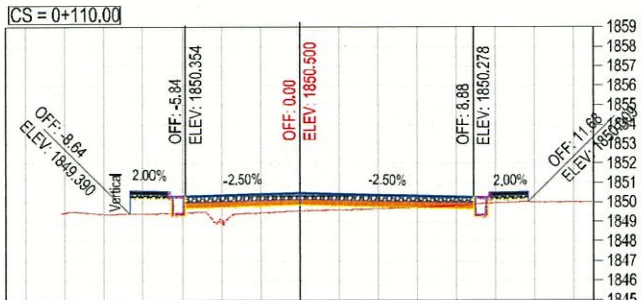
EX. ELE			1849.60	1849.46	1849.32	1849.26	1849.05	1849.33	1849.61	1849.66	1849.71	1849.76	1849.85	1850.00	1850.15
FRL			1849.60	1849.46	1849.32	1849.26	1849.05	1849.33	1849.61	1849.66	1849.71	1849.76	1849.85	1850.00	1850.15

CS = 0+110.00



OFFSET	-14.00	-12.00	-10.00	-8.00	-6.00	-4.00	-2.00	0	2.00	4.00	6.00	8.00	10.00	12.00	14.00
EX. ELE		1849.46	1849.38	1849.40	1849.46	1849.01	1849.45	1849.53	1849.59	1849.66	1849.72	1849.82	1849.94	1850.00	1849.99
FRL		1849.46	1849.38	1849.40	1849.46	1849.01	1849.45	1849.53	1849.59	1849.66	1849.72	1849.82	1849.94	1850.00	1849.99

[redacted]

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)
KABUL MUNICIPALITY (KM)

PRELIMINARY DESIGN FOR THE REHABILITATION OF
BRIDGES ON MAIN ROADS IN KABUL

FINAL DESIGN DRAWING
OF
42.1M LONG PULE MAHMOOD KHAN BRIDGE (VB001)

GENERAL ARRANGEMENT, SUB STRUCTURE , SUPERSTRUCTURE
AND APPROACH ROAD

[redacted]

JULY,2021

GENERAL NOTES

1. STRUCTURE DESCRIPTION

1.1. THE PROJECT INCLUDES THE CONSTRUCTION OF NEW 3 SPAN 42.1m LONG AND 15.7m WIDE BRIDGE. THE SUPERSTRUCTURE SHALL CONSIST OF RCC DECK ON CAST IN SUIT RCC GIRDERS. THE SUBSTRUCTURE SHALL CONSIST OF RCC ABUTMENTS AND SOLID WALL PIERS. ABUTMENTS AND PIERS SHALL BE SUPPORTED BY BORED RCC PILES. STONE MASONRY RETAINING/WING WALLS SHALL BE FOUNDED ON SHALLOW FOUNDATION.

2. GENERAL

2.1. THE NOTES SHALL BE READ IN CONJUNCTION WITH RELEVANT CONTRACT CONDITIONS, TECHNICAL SPECIFICATIONS, AND BILL OF QUANTITIES FOR THE PROJECT. WHERE MORE THAN ONE SET OF STANDARDS IS USED TO SPECIFY MATERIAL, TEST OR LEVEL OF WORKMANSHIP, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN UNLESS SPECIFICALLY OTHERWISE NOTED.

2.2. ALL MATERIALS USED AND WORKMANSHIP INVOLVED IN THE EXECUTION OF ALL WORK COVERED UNDER THIS CONTRACT SHALL BE IN THE STRICT CONFORMITY WITH DRAWINGS, SPECIFICATIONS, AND CONTRACT CONDITIONS.

2.3. ALL DIMENSIONS IN MILLIMETERS, ELEVATIONS, AND LEVELS INDICATED ON THE DRAWINGS ARE IN MATER.

2.4. WHERE REFERENCE STANDARD FOR TESTING MATERIALS AND WORKMANSHIP ARE NOT EXPLICITLY STATED ON THE DRAWINGS AND CONTRACT DOCUMENTS, LATEST RELEVANT STANDARDS OF AASHTO, ASTM, OR ACI SHALL BE APPLIED TENDON AS INSTRUCTED BY THE ENGINEER.

2.5. ALL FACES OF CONCRETE IN ABUTMENTS AND WINGWALLS IN CONTACT WITH SOIL SHALL BE PAINTED WITH TWO COATS OF HOT BITUMEN.

2.6. CONSIDER CONSTRUCTION JOINT AT EACH 10M LENGTH OF WINGWALLS OR AS PER THE ADVICE OF ENGINEER –IN–CHARGE.

2.7. CONTRACTOR TO TAKE CARE OF DE–MINING,SECURITY AND SAFETY OF THE CONSTRUCTION SITE FROM COMMENCING THE WORK TO THE END OF ALL CONSTRUCTION WORKS.

3. DESIGN CRITERIA

3.1. THE COMPLETE DESIGN OF BRIDGE SUPERSTRUCTURE HAVE BEEN CARRIED OUT IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS 2012.

3.2. DESIGN LOADS

3.2.1. DESIGN VEHICULAR LIVE LOADS
HL–93 CONSISTING OF DESIGN TRUCK AND LANE LOADS

3.2.2. SECONDARY LOADS

TEMPERATURE AT CONSTRUCTION	25C°
TEMPERATURE RISE	15C°
TEMPERATURE DROP	–40C°

4. SOIL AND FOUNDATION

4.1. THE PILE LENGTHS SPECIFICIED IN THE DRAWINGS ARE BASED ON THE RECOMMENDATION OF THE GEOTECHNICAL INVESTIGATION REPORT. THE CONTRACTOR WILL CARRY OUT CONFIRMATORY THE CASTING AND TESTING OF THE TEST PILES ACCORDING TO THE RELEVANT DRAWINGS AND SPECIFICATIONS. THE LOAD TEST REPORT OF THE TEST PILES WILL BE SUBMITTED TO THE BRIDGE DESIGN ENGINEER FOR REVIEW AND APPROVAL. ANY MODIFICATION IN THE FOUNDATION DESIGN SHOWN IN THESE DRAWINGS SHALL BE CARRIED OUT, IF REQUIRED, BY THE ENGINEER BASED ON THE RESULTS OF THE MENTIONED LOAD TEST RESULTS PRIOR TO THE COMMENCEMENT OF PILING FOR PERMANENT WORKS.

4.2. DESIGN SERVICE LOAD CAPACITY OF PILES ARE TAKEN AS FOLLOWS:
FOR ABUTMENT PILE 935.2kN
FOR PIER PILE 1232.0kN

5. MATERIAL & WORKMANSHIP

ALL MATERIAL AND WORKMANSHIP SHALL MEET RELEVANT AASHTO AND ASTM STANDARDS AS DETAILED IN THE SPECIFICATIONS AND SUBJECT TO THE ENGINEER'S APPROVAL.

6. CONCRETE

6.1. THE FOLLOWING TYPES OF CONCRETE SHALL BE USED FOR ALL STRUCTURAL/NON–STRUCTURAL COMPONENTS

6.2. LEAN CONCRETE 1.45KSI (10MPa)

6.3. APPROACH SLAB, BARRIER, SIDE WALK 4KSI (28MPa)

6.4. PILES AND DECK SLAB 4.5KSI (31.5MPa)

6.5. PILE CAP, ABUTMENTS, FOUNDATIONS, FOOTING, PIER COLUMNS, BENT CAP 4.5KSI(31.5MPa)

6.6. RCC GIRDERS AND DIAPHRAGMS 4.5KSI (31.5MPa)

6.7. TO INCREASE WORKABILITY OF THE CONCRETE, ENGINEER'S APPROVED PLASTICIZER / ADMIXTURE MAY BE USED AFTER DETERMINING THE QUANTITY AT THE DESIGN MIX STAGE.

6.8. MAXIMUM SIZE OF AGGREGATE FOR ALL CLASSES OF CONCRETE IS 20MM.

6.9. THE CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGN PRIOR TO COMMENCEMENT OF WORK.

6.10. THE CYLINDERS SHALL BE TESTED IN A LABORATORY APPROVED BY THE ENGINEER.

6.11. CONCRETE SHALL BE DEPOSITED, VIBRATED AND CURED IN ACCORDANCE WITH THE SPECIFICATIONS.

6.12. FOR CONCRETE DEPOSITED AGAINST THE GROUND. LEAN CONCRETE WITH MINIMUM THICKNESS OF 100 mm SHALL BE LAID FIRST BEFORE INSTALLING THE RCC. THIS LEAN CONCRETE SHALL NOT CONSIDERED IN MEASURING THE STRUCTURAL DEPTH OF CONCRETE SECTION.

6.13. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL PLACING SEQUENCE FOR ALL CONCRETE WORK.

6.14. FINE AGGREGATE SHALL BE NATURAL WELL GRADED CLEAN SAND OF SHARP ANGULAR AND HARD GRAINS WITH F.M. NOT LESS THAN 2.0.

MINIMUM CONCRETE COVER TO REINFORCEMENT

PILES, PILE CAPS, FOUNDATIONS BOTTOM	75mm TO THE NEAREST REINFORCEMENT
ABUTMENTS, PIERS AND BENT CAP	50mm TO STIRRUPS
DECK SLAB	TOP MESH 40mm, SOFFIT MESH 30mm
GIRDER AND DIAPHRAGMS	40mm

7. CONCRETE FINISH

ALL EXPOSED CONCRETE SURFACES ABOVE GROUND SHALL HAVE "FAIR FACE" FINISH. ALL SHARP EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 25mm U.N.O. ALL FORM WORK SHALL BE OF SMOOTH STEEL PLATES PROPERLY STRENGTHENED & BRACED AGAINST WAVES WOBBLING OR BUCKLING.

8. REINFORCING STEEL

8.1. ALL REINFORCING STEEL BARS SHALL BE ROLLED FROM PRIME GRADE. REINFORCEMENT ROLLED FROM SCRAP STEEL, SHIP PLATES OR RE–ROLLED BILLETS SHALL NOT BE USED.

8.2. ALL REINFORCING BARS SHALL BE HIGH–YIELD, DEFORMED BARS WITH MINIMUM YIELD STRENGTH OF GRADE 60 CONFORMING TO THE FOLLOWING STANDARDS: ASTM–615 GRADE 60 HOT–ROLLED

8.3. UNLESS NOTED OTHERWISE, LAPS IN REINFORCING BARS SHALL BE STAGGERED.

8.4. ALL REINFORCING STEEL SHALL BE ACCURATELY LOCATED IN FORMWORK AND HELD FIRMLY IN PLACE BEFORE PLACING OF CONCRETE BY MEANS OF 16 GAUGE BLACK ANNEALED WIRE AND ADEQUATE DESIGN SPACERS AND SUFFICIENT SPACER CHAIRS TO HOLD RE–BARS IN POSITION.

8.5. UNLESS NOTED ON DRAWING FOLLOWING LAP LENGTHS SHALL BE USED.

28 DAYS MINIMUM COMPRESSIVE STRENGTH (MPA)	BAR DIA(MM)				
	12	16	20	25	32
	TENSION LAP * SPLICES (mm)				
28	305	385	575	755	1210
31.5	305	385	540	710	1140
41.5	305	385	535	615	990

"* MODIFICATION FACTORS SHALL BE MULTIPLIED TO THE TABULATED SPLICES VALUES IF FOLLOWING CONDITIONS APPLIES;
MULTIPLY BY 1.4', FOR TOP HORIZONTAL BARS BELOW WHICH MORE THAN 300mm OF FRESH CONCRETE IS CAST.
MULTIPLY SPLICE LENGTH BY A FACTOR OF '1.3', IF LAPPING BARS ARE NOT STAGGERED. "

8.6. UNLESS OTHERWISE SHOWN ON DRAWINGS. THE CLEAR DISTANCE BETWEEN PARALLEL BARS IN LAYER SHALL NOT BE LESS THAN 1,5 TIMES THE NOMINAL DIAMETER OF THE BAR NOR LESS THAN 1.5 TIMES THE MAXIMUM SIZE OF COARSE AGGREGATE. THE CLEAR DISTANCE BETWEEN LAYERS SHALL NOT BE LESS THAN 25mm NOR ONE BAR DIAMETER. THE BARS IN THE UPPER LAYER SHALL BE PLACED DIRECTLY ABOVE THOSE IN BOTTOM LAYER.

8.7. CONTRACTOR IS RESPONSIBLE TO PROVIDE STEEL MANUFACTURER CERTIFICATE TO IMPLEMENTATION CONSULTANT PRIOR TO START OF THE WORK.

9. BEARING PADS

ELASTOMERIC BEARING PADS SHOWN ON THE INDIVIDUAL DRAWINGS SHALL BE LAMINATED BEARINGS MADE FROM 100% VIRGIN, CRYSTALLIZATION RESISTANT, NEOPRENE OF 60(5 DURO HARDNESS MEETING THE REQUIREMENTS OF AASHTO M–251. INTERNAL STEEL PLATES SHALL BE ROLLED MILD STEEL CONFORMING TO ASTM A–366 OR ASTM A–283 GRADE "D".

10. STRUCTURAL STEEL

ALL STRUCTURAL STEEL INDICATED ON DRAWINGS INCLUDING PLATES, ANGLES, ETC., SHALL BE ROLLED FROM PRIME BILLETS OF GRADE 60.

11. PILING WORKS

11.1. PILING WORK SHALL BE EXECUTED BY THE CONTRACTOR USING PERCUSSION, ROTARY OR OTHER APPROVED METHODS. A TEMPORARY STEEL CASING SHALL BE DRIVEN AHEAD OF THE BOREHOLE TO THE REQUIRED DEPTH TO ENSURE BOREHOLE STABILITY. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REQUIRED SHAPE AND LENGTH OF BOREHOLE AND FINISHED PILE.

11.2. PILE CONCRETING WILL BE CONTINUED WITH IMMERSED TREMIE UNTIL THE INITIAL BATCH OF CONTAMINATED CONCRETE HAS OVER FLOWN AND THE PILE CONCRETE SURFACE IS AT LEAST 750mm ABOVE THE FINAL CUT–OFF LEVEL. THIS EXTRA LENGTH OF CONCRETE SUBSEQUENTLY BE CUT–OFF AFTER MINIMUM 3 DAYS TO ACHIEVE A UNIFORM SOUND CONCRETE BED. PILE ONCE REJECTED BY THE ENGINEER SHALL NOT BE ALLOWED FOR PERMANENT WORK. ADDITIONAL REQUIRED PILES DUE TO SUCH REJECTION BE DONE BY CONTRACTOR AT HIS OWN COST. IF TREMIE IS WITHDRAWN PREMATURELY BEFORE THE FINAL BATCH OF THE CONCRETE HAS OVERFLOWN OR IF IT GETS STUCK IN THE WET CONCRETE, THE PILE WILL BE REJECTED.

11.3. STRUCTURAL CONCRETE AND REINFORCING STEEL FOR THE TEST PILES SHALL CONFORM TO THE GENERAL NOTES SPECIFICATIONS RELATING TO PILING WORK CONTAINED IN THE PROJECT DOCUMENTS.

11.4. LOAD TESTING WILL BE DONE WHEN FIELD CURED CONCRETE CYLINDERS INDICATE A STRENGTH OF 4500PSI (MINIMUM) WHICHEVER IS LATER. PROGRAM FOR LOAD TESTING SHALL BE NOTIFIED TO THE ENGINEER.

11.5. WORKING PILE WILL BE BORED AND CONSTRUCTED AFTER TEST PILE REPORT IS REVIEWED BY THE ENGINEER AND ANY MODIFICATIONS INSTRUCTED BY HIM ARE IMPLEMENTED.

11.6. CONTRACTOR SHALL ENSURE USE OF PROPERLY CALIBRATED LOADING DEVICE WHILE UNDERTAKING PILE LOAD TEST. A RECENT CALIBRATION CERTIFICATE OF JACK & PRESSURE GAUGE OBTAINED FROM AN INDEPENDENT REPUTABLE LABORATORY SHALL BE SUBMITTED TO THE ENGINEER AS PROOF OF CALIBRATION IN ADVANCE OF THE ACTUAL LOAD TEST. (THE CERTIFICATE SHALL NOT BE OLDER THAN SIX MONTH).

11.7. ON COMPLETION OF THE LOAD TEST CONTRACTOR SHALL SUBMIT A FINAL LOAD TEST REPORT COMPLETE WITH LOAD–SETTLEMENT CURVES, OBSERVATION & CONCLUSION TO THE ENGINEER FOR THE ENGINEER'S REVIEW AND INSTRUCTION. ENGINEER'S APPROVAL MUST BE OBTAINED BEFORE PROCEEDING WITH ANY FURTHER PILING WORK.

12. SCAFFOLDING

ALL SCAFFOLDING SHALL BE DESIGNED BY THE CONTRACTOR. SCAFFOLDING SHALL BE DESIGNED IN A WAY THAT THE WATER UNDERNEATH IS ABLE TO FLOW UNOBSTRUCTED.

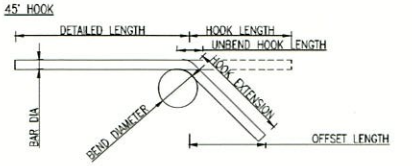
13. SURVEY

13.1. ALL SURVEY COORDINATES AND SURVEY CONTROL POINTS SHOWN ON SURVEY/LAYOUT PLANS REFER TO UTM COORDINATE SYSTEM.

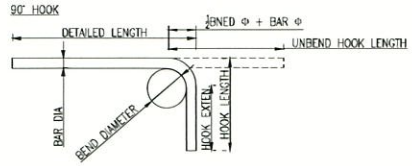
13.7. SETTING OUT: FINAL RESPONSIBILITY FOR PRECISE & ACCURATE SETTING OUT OF THE PROPOSED BRIDGE & COORDINATION WITH PROPOSED HIGHWAY ALIGNMENT RESTS SOLELY WITH THE CONTRACTOR. IF NECESSARY, THE CONTRACTOR SHALL CARRY OUT A DETAILED CLOSED TRANSVERSE SURVEY ALONG THE PROPOSED ALIGNMENT.

REBAR HOOK SPECIFICATION

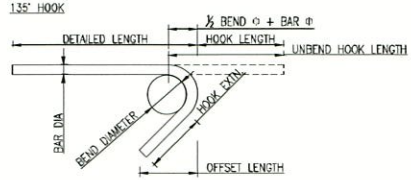
45° HOOK



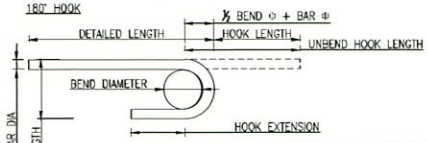
90° HOOK



135° HOOK

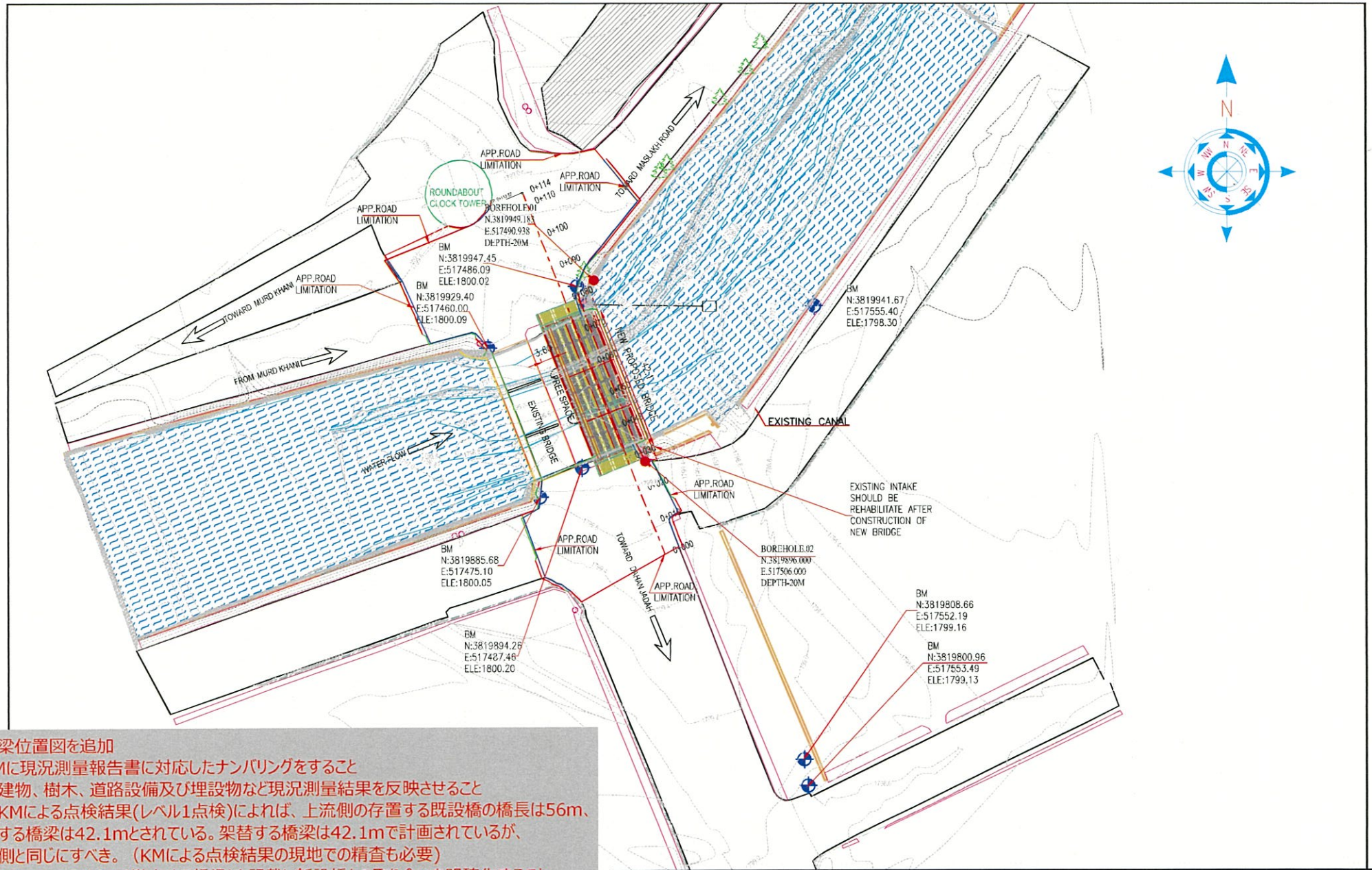


180° HOOK



STANDARD HOOK AND BEND REQUIREMENT (ART. 5.10 AASHTO LRFD 2007)

REBAR DESIGNATION	BENDING DIAMETER		STANDARD HOOK EXTENSION,MM			
			TIE/STIRRUPS		MAIN REINFORCMENT	
	TIE/ STIRRUPS	MAIN REINFORCMENT	90°	135°	90°	180°
10	40	60	60	75	120	65
12	48	72	72	75	144	65
16	64	96	96	96	192	65
20		120	240	120	240	80
25		150	300	150	300	100
28		168		168	336	112
32		256		192	384	128

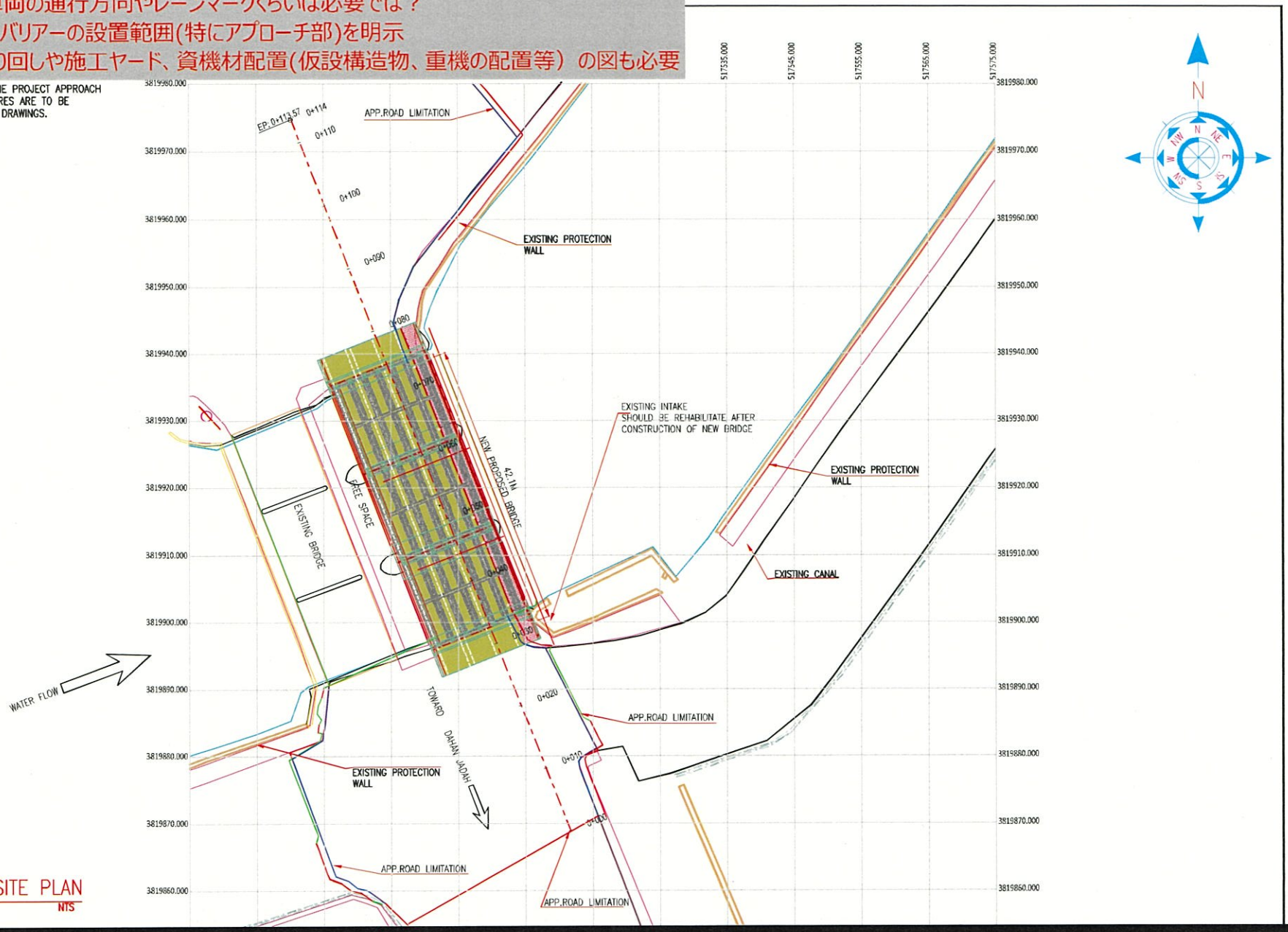


①橋梁位置図を追加
②BMに現況測量報告書に対応したナンバリングをすること
★③建物、樹木、道路設備及び埋設物など現況測量結果を反映させること
★④KMによる点検結果(レベル1点検)によれば、上流側の存置する既設橋の橋長は56m、撤去する橋梁は42.1mとされている。架替する橋梁は42.1mで計画されているが、上流側と同じにすべき。（KMによる点検結果の現地での精査も必要）
★⑤Existing Bridge(撤去する橋梁)を記載し新設橋との取り合いを明確化すること。
★⑥既設橋撤去時・新設橋建設時の掘削による影響範囲を明確化すること。
★⑦存置する既設橋との離隔を3.6mとする根拠を示すこと。
★⑧付帯工(護岸等・洗掘対策等)の明示

[redacted]

①図面の意図が不明。車両の通行方向やレーンマークくらいは必要では？
②BRTレーンとの境にあるバリアーの設置範囲(特にアプローチ部)を明示
③施工時の既設道路切り回しや施工ヤード、資機材配置(仮設構造物、重機の配置等）の図も必要

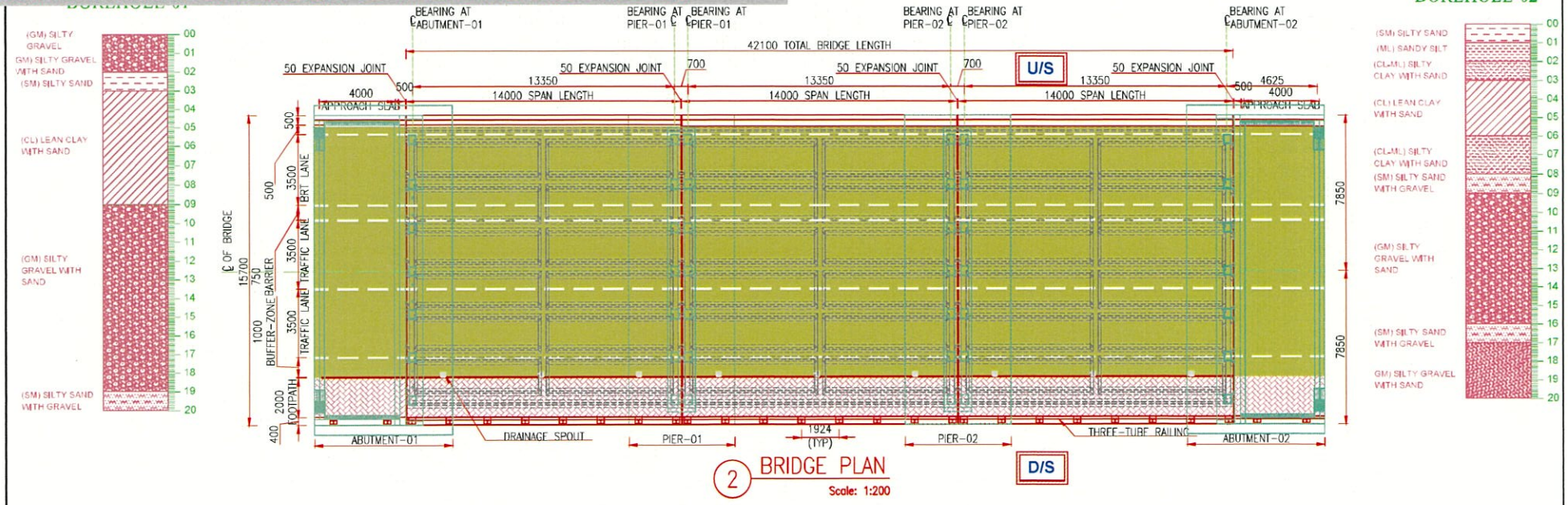
1. LENGTH AND GRADE OF THE PROJECT APPROACH ROAD AND ROAD STRUCTURES ARE TO BE LOCATED IN ROAD DESIGN DRAWINGS.



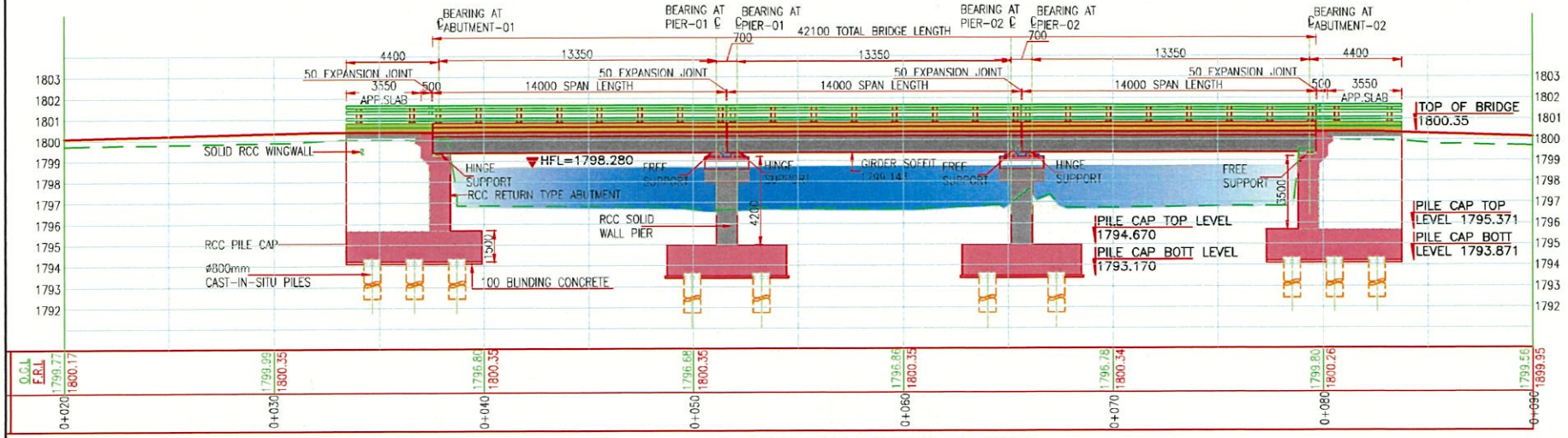
1 BRIDGE SITE PLAN
SCALE NTS

[redacted]

★①Existing Bridge(上流側の存置させる橋梁)の下部工位置・形状を追記し、
架替新橋の下部工位置と同じであることを確認すること(同じではない場合は同じとなるように位置を調整すること)
★②KMによる点検結果(レベル1点検)によれば、上流側の存置する既設橋の橋長は56m、撤去する橋梁は42.1mとされている。
架替する橋梁は42.1mで計画されているが、上流側と同じにすべき。(KMによる点検結果の現地での精査も必要)



2 BRIDGE PLAN
Scale: 1:200

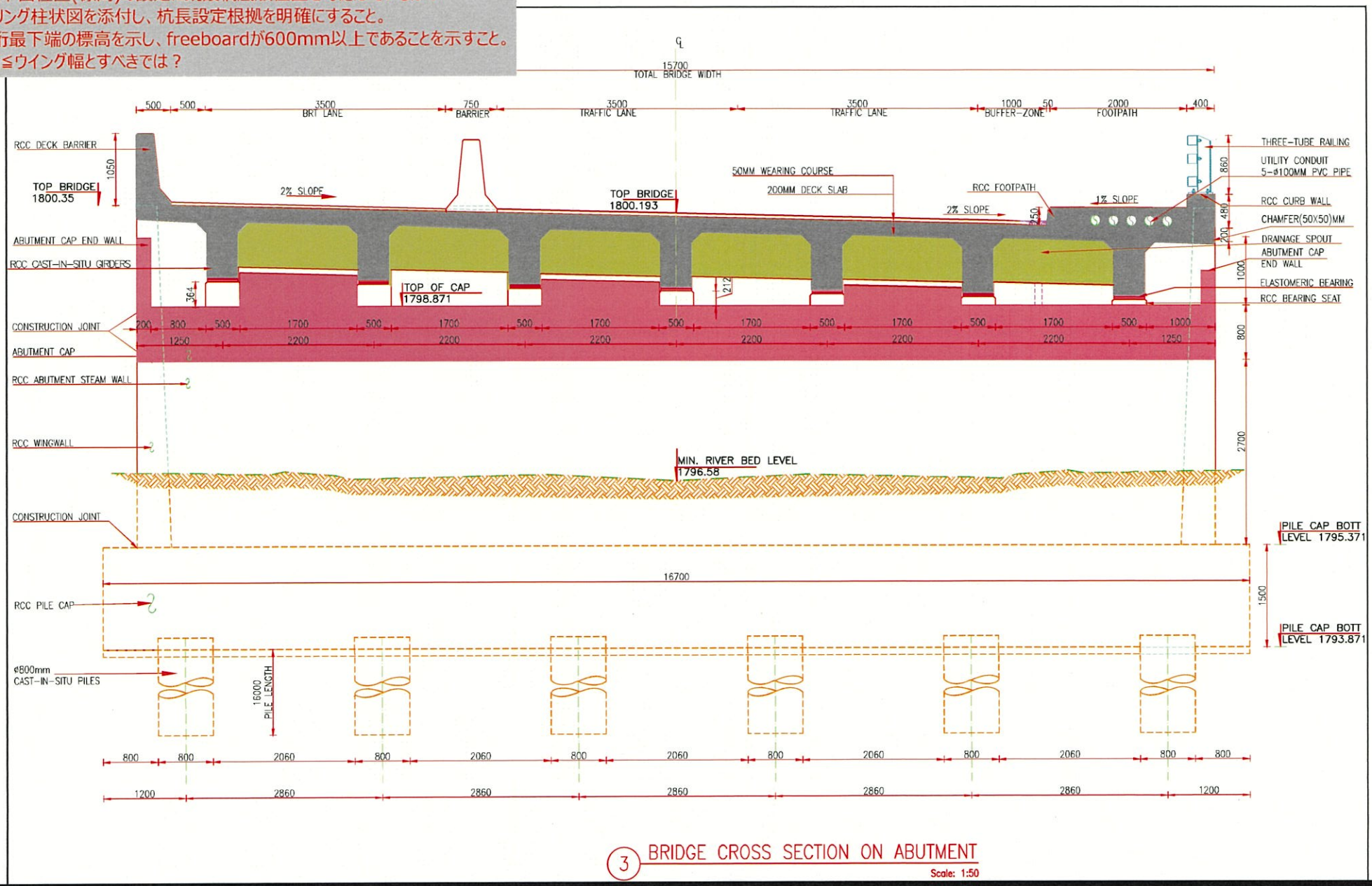


3 BRIDGE LONGITUDINAL SECTION

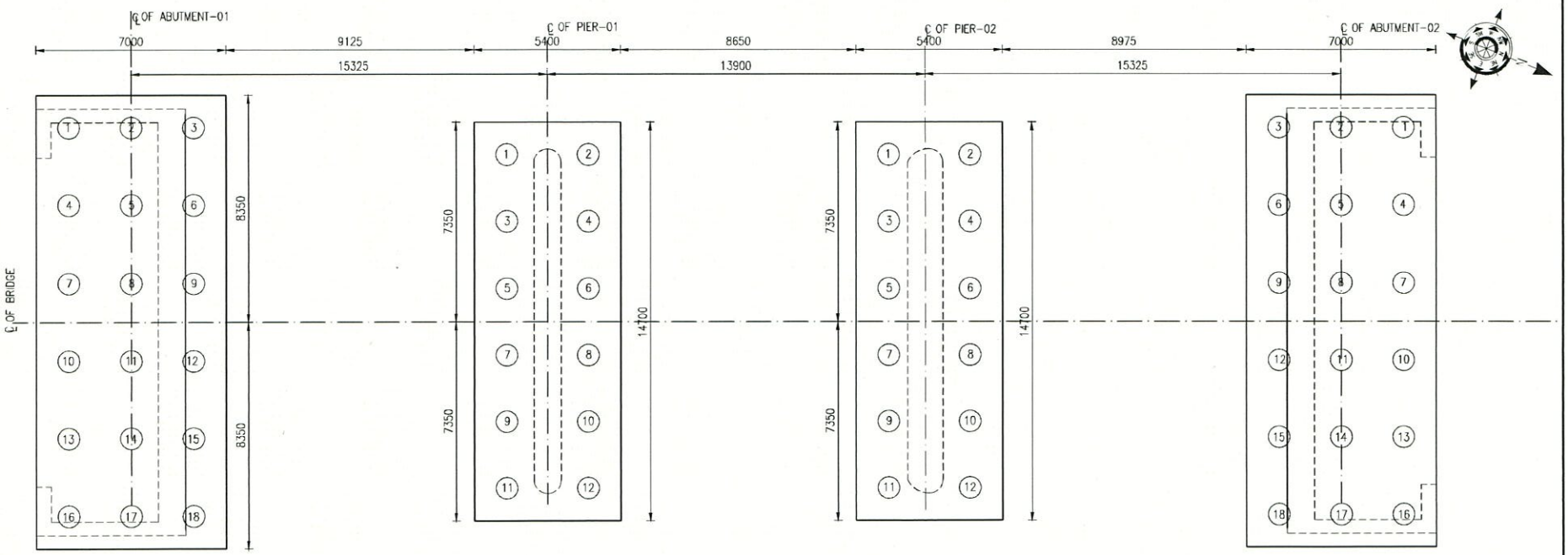
★③Existing Bridge(撤去する橋梁)を記載し新設橋との取り合いを明確化すること。
★④ボーリング柱状図を添付し、杭長の根拠を明確化すること。
⑤橋台位置の測点を明示すること
⑥存置する既設橋の桁下高との関係を明示するとともに、桁最下端レベルを表示し、freeboard>600であることを明記すること。
⑦横桁の寸法や位置が不明

[redacted]

★①存置・撤去する既設橋の下部工との取り合いを明示すること
★②底版下面位置(標高)の設定に既設橋底版位置を考慮しているか？
★③ボーリング柱状図を添付し、杭長設定根拠を明確にすること。
④HFLと桁最下端の標高を示し、freeboardが600mm以上であることを示すこと。
⑤高欄幅≦ウイング幅とすべきでは？



3 BRIDGE CROSS SECTION ON ABUTMENT
Scale: 1:50



BRIDGE LAYOUT COORDINATE TABLE		
ABUTMENT-01		
MEMBER	NORTHING	EASTING
PILE-01	3819897.498	517506.506
PILE-02	3819899.639	517505.667
PILE-03	3819901.781	517504.827
PILE-04	3819896.454	517503.844
PILE-05	3819898.596	517503.004
PILE-06	3819900.737	517502.165
PILE-07	3819895.410	517501.181
PILE-08	3819897.552	517500.341
PILE-09	3819899.693	517499.502
PILE-10	3819894.366	517498.518
PILE-11	3819896.508	517497.679
PILE-12	3819898.650	517496.839
PILE-13	3819893.323	517495.855
PILE-14	3819895.465	517495.016
PILE-15	3819897.606	517494.177
PILE-16	3819892.279	517493.193
PILE-17	3819894.421	517492.353
PILE-18	3819896.562	517491.514

BRIDGE LAYOUT COORDINATE TABLE		
PIER-01		
MEMBER	NORTHING	EASTING
PILE-01	3819914.799	517498.651
PILE-02	3819912.006	517499.746
PILE-03	3819913.902	517496.360
PILE-04	3819911.109	517497.455
PILE-05	3819913.004	517494.070
PILE-06	3819910.211	517495.165
PILE-07	3819912.106	517491.780
PILE-08	3819909.313	517492.874
PILE-09	3819911.209	517489.489
PILE-10	3819908.415	517490.584
PILE-11	3819910.311	517487.199
PILE-12	3819907.518	517488.294

BRIDGE LAYOUT COORDINATE TABLE		
PIER-02		
MEMBER	NORTHING	EASTING
PILE-01	3819927.881	517493.524
PILE-02	3819925.087	517494.618
PILE-03	3819926.983	517491.233
PILE-04	3819924.190	517492.328
PILE-05	3819926.085	517488.943
PILE-06	3819923.292	517490.038
PILE-07	3819925.187	517486.653
PILE-08	3819922.394	517487.747
PILE-09	3819924.290	517484.362
PILE-10	3819921.497	517485.457
PILE-11	3819923.392	517482.072
PILE-12	3819920.599	517483.167

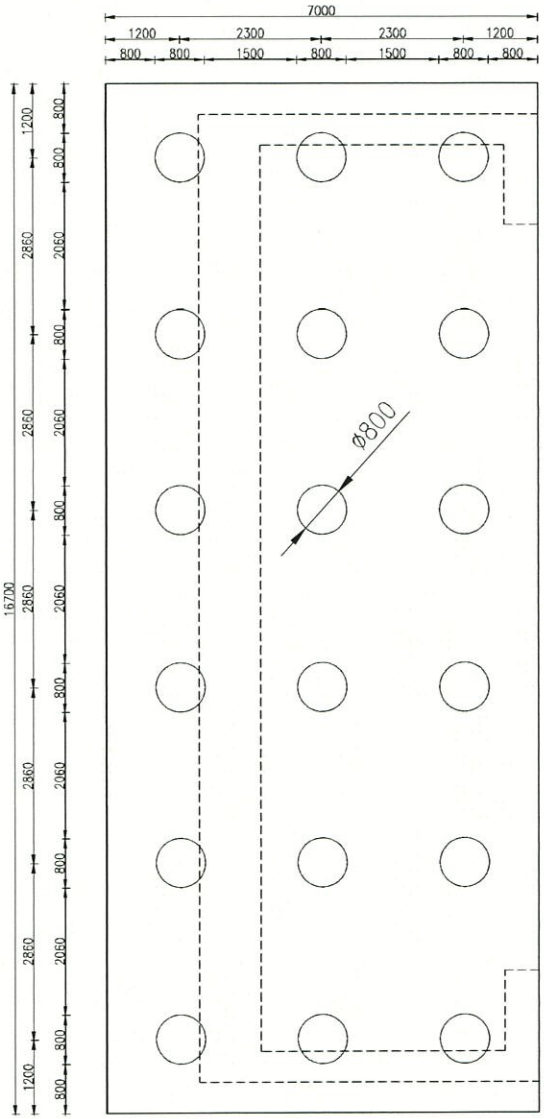
BRIDGE LAYOUT COORDINATE TABLE		
ABUTMENT-02		
MEMBER	NORTHING	EASTING
PILE-01	3819943.258	517488.570
PILE-02	3819941.117	517489.410
PILE-03	3819938.975	517490.249
PILE-04	3819942.215	517485.907
PILE-05	3819940.073	517486.747
PILE-06	3819941.171	517483.245
PILE-07	3819939.029	517484.084
PILE-08	3819936.888	517484.924
PILE-09	3819940.128	517480.582
PILE-10	3819937.986	517481.421
PILE-11	3819935.844	517482.261
PILE-12	3819939.084	517477.919
PILE-13	3819936.942	517478.759
PILE-14	3819934.801	517479.598
PILE-15	3819938.041	517475.257
PILE-16	3819935.899	517476.096
PILE-17	3819933.757	517476.935
PILE-18	3819896.562	517491.514

① FOUNDATION PLAN

Scale: 1:150

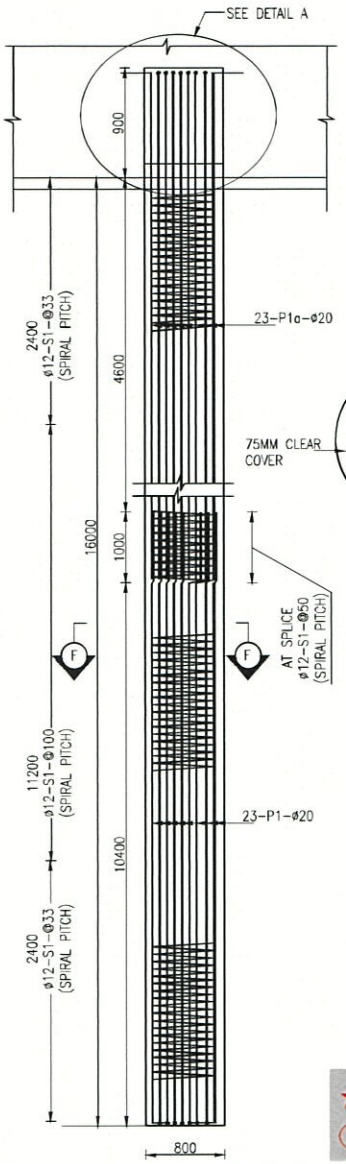
①杭基礎のEL.を表示すること

[redacted]



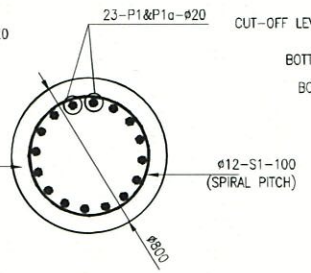
1 PILES ARRANGEMENT PLAN ON ABUTMENT

Scale: 1:75



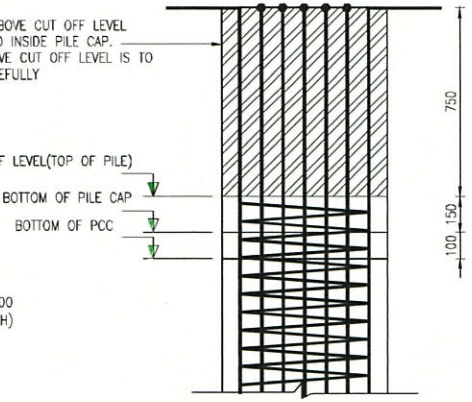
2 REINFORCMENT DETAILS OF PILE ON ABUTMENT

Scale: 1:50



3 SECTION F-F

Scale: 1:20



4 DETAIL "A"

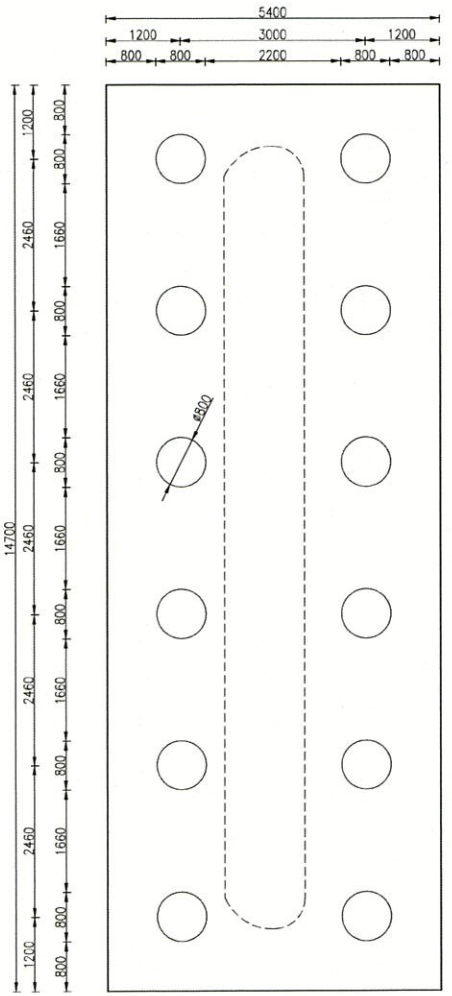
Scale: 1:20

NOTE:

1. TREMIE CONCRETING IS TO BE ADOPTED WHENEVER WATER IS PRESENT.
2. THE SPIRAL REINFORCEMENT SHOULD PREFERABLY BE TACK WELDED TO THE MAIN REINF.
3. CLEAR COVER TO MAIN REINFORCEMENT BAR IS TO BE 75MM. UNLESS OTHERWISE NOTED
4. THE LAPPING PORTION OF MAIN REINFORCEMENT SHALL BE JOINT WELDED.
5. PILE CAPACITY IS TO BE CONFIRMED BY STATIC PILE LOAD TEST FOR 935.2KN AS PER ASTM D-1143 INTRODUCED METHOD.
6. TEST PILE TO BE TESTED AT ELEVATION MATCHING THAT OF PERMANENT PILES.
7. TEST PILE REINFORCEMENT CONFIGURATION APPLE TO TEST AND PERMANENT PILES.

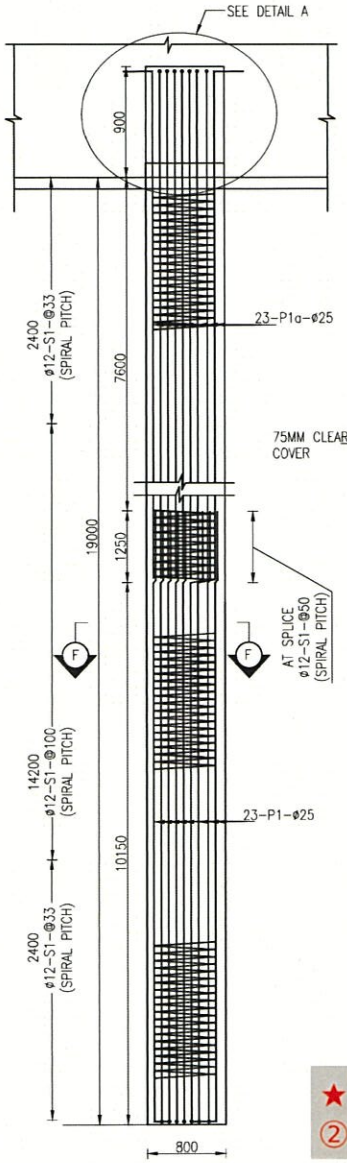
★①杭長（16m）とスパイラル筋割付長が不一致
②主筋本数（D20、23本）が図面では16本しか表示されていない

[redacted]



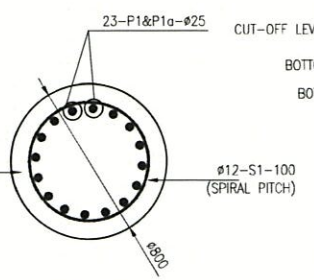
1 PILES ARRANGEMENT PLAN

Scale: 1:75



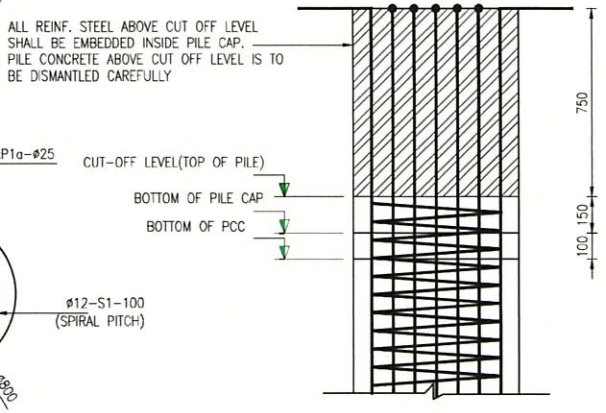
2 REINFORCMENT DETAILS OF PILE

Scale: 1:50



3 SECTION F-F

Scale: 1:20



4 DETAIL "A"

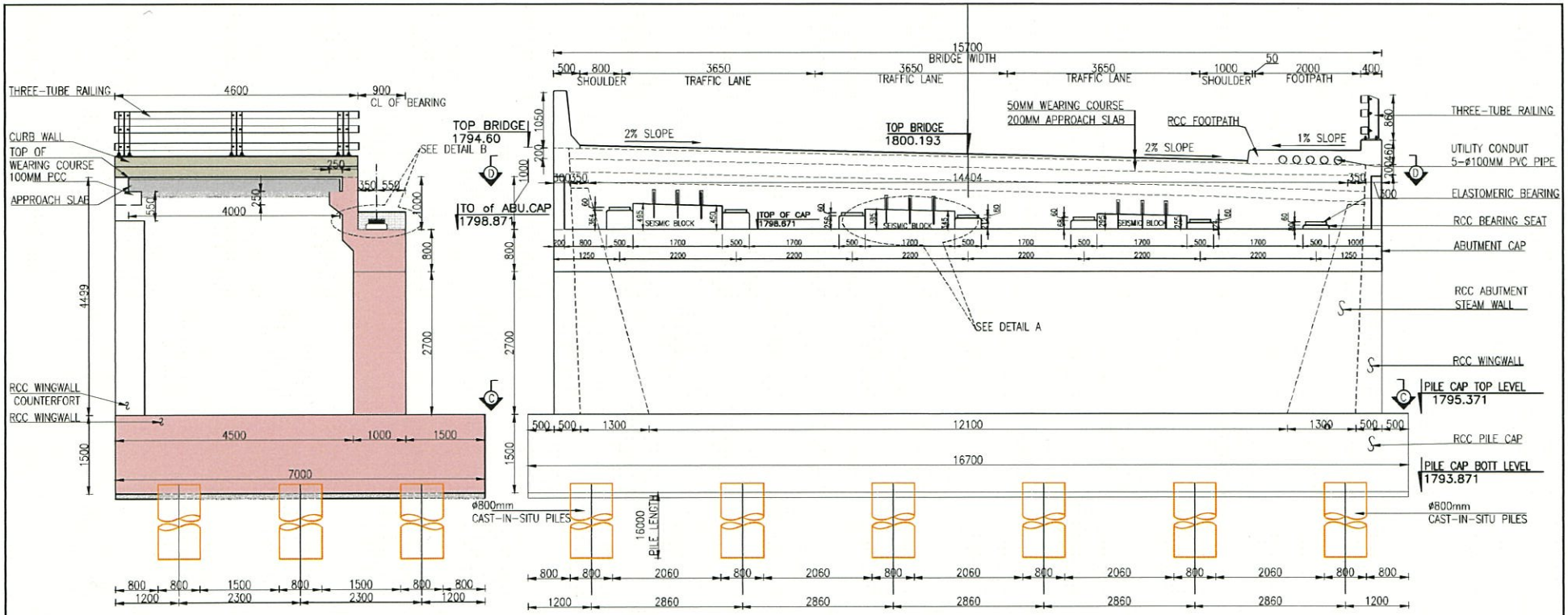
Scale: 1:20

NOTE:

1. TREMIE CONCRETING IS TO BE ADOPTED WHENEVER WATER IS PRESENT.
2. THE SPIRAL REINFORCEMENT SHOULD PREFERABLY BE TACK WELDED TO THE MAIN REINF.
3. CLEAR COVER TO MAIN REINFORCEMENT BAR IS TO BE 75MM. UNLESS OTHERWISE NOTED
4. THE LAPPING PORTION OF MAIN REINFORCEMENT SHALL BE JOINT WELDED.
5. PILE CAPACITY IS TO BE CONFIRMED BY STATIC PILE LOAD TEST FOR 1232KN AS PER ASTM D-1143 INTRODUCED METHOD.
6. TEST PILE TO BE TESTED AT ELEVATION MATCHING THAT OF PERMANENT PILES.
7. TEST PILE REINFORCEMENT CONFIGURATION APPLE TO TEST AND PERMANENT PILES.

★①杭長（19m）とスパイラル筋割付長が不一致
②主筋本数（D20、23本）が図面では16本しか表示されていない

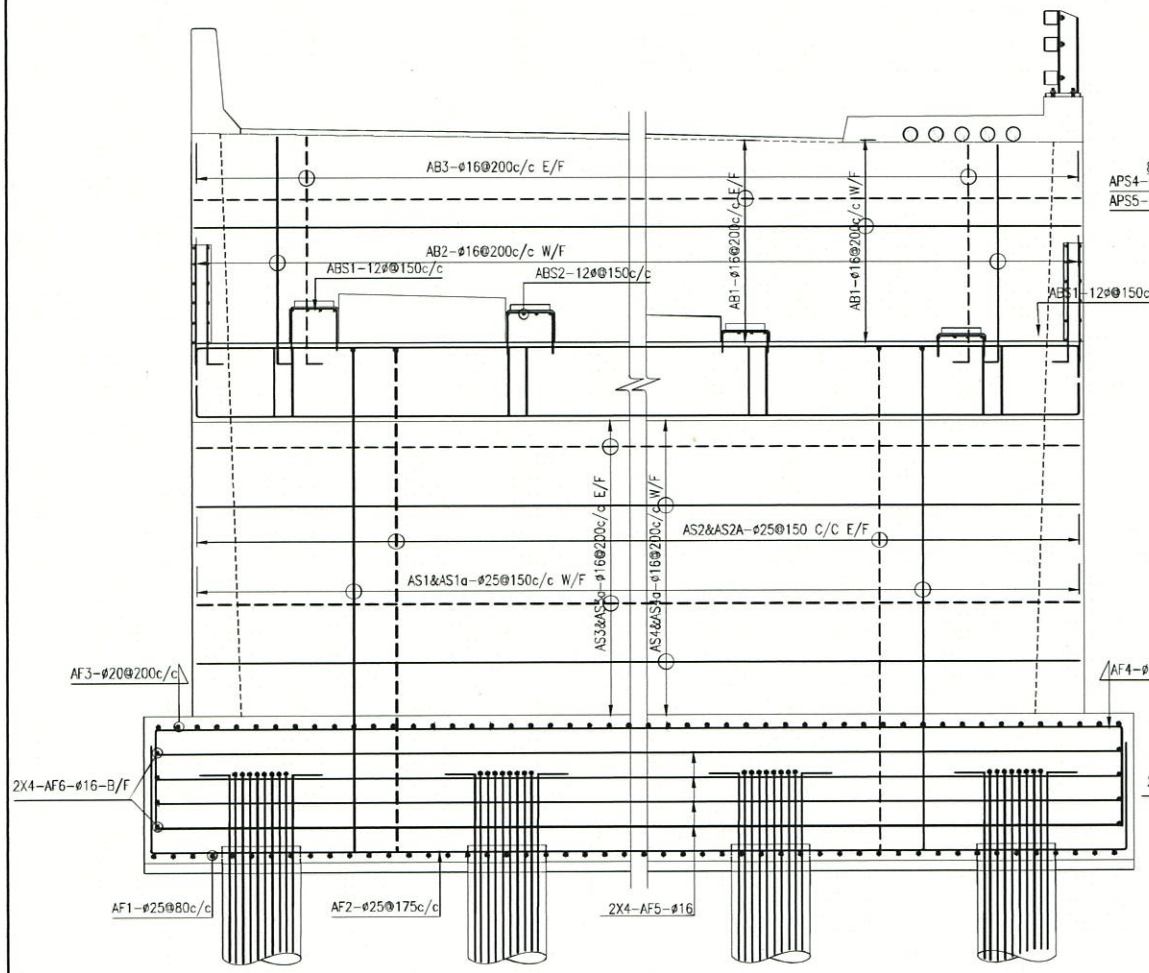
[redacted]



① SECTION (A-A)
Scale: 1:75

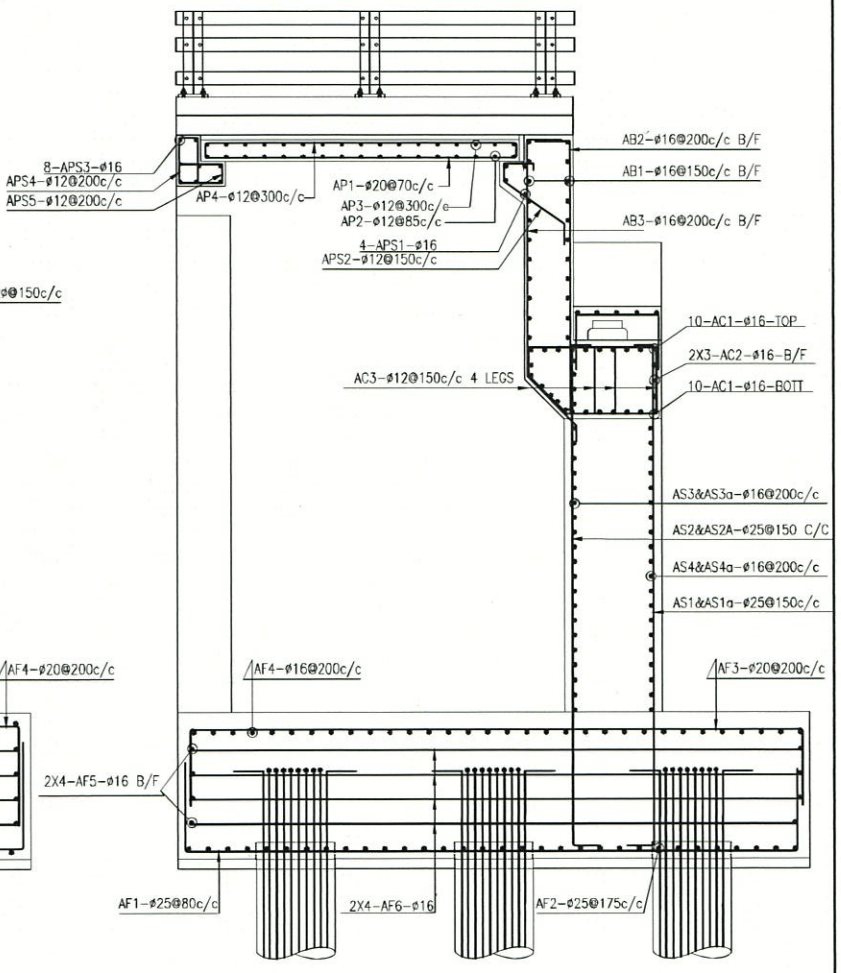
② FRONT ELEVATION OF ABUTMENT (B-B)
Scale: 1:75

①Section No.が逆になっている
②高さ表示を再チェックすること



3 REINFORCEMENT OF DETAILS OF SEC.(E-E)

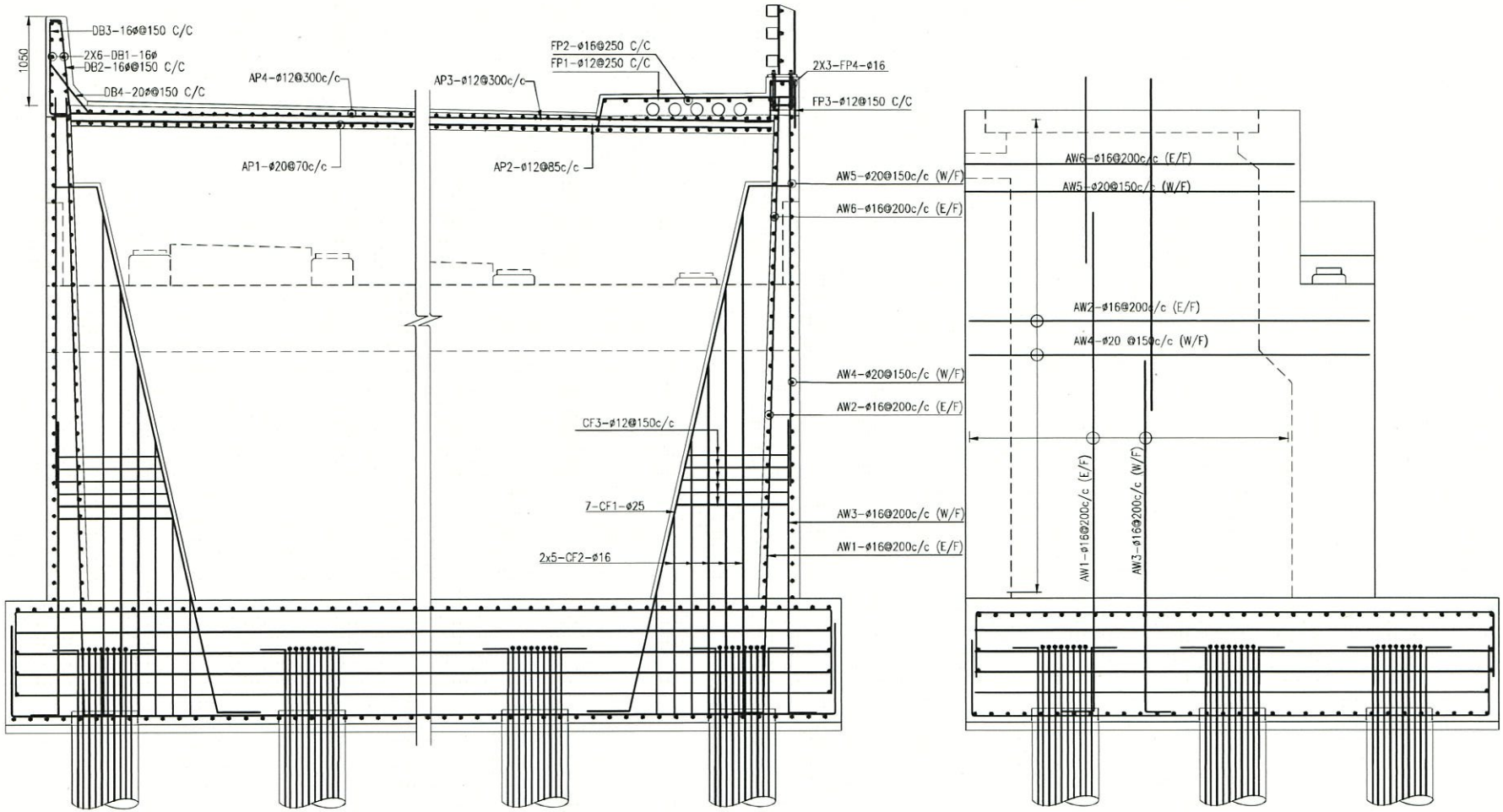
Scale: 1:50



4 REINFORCEMENT OF DETAILS OF SEC.(F-F)

①壁巾止め筋追加

[redacted]

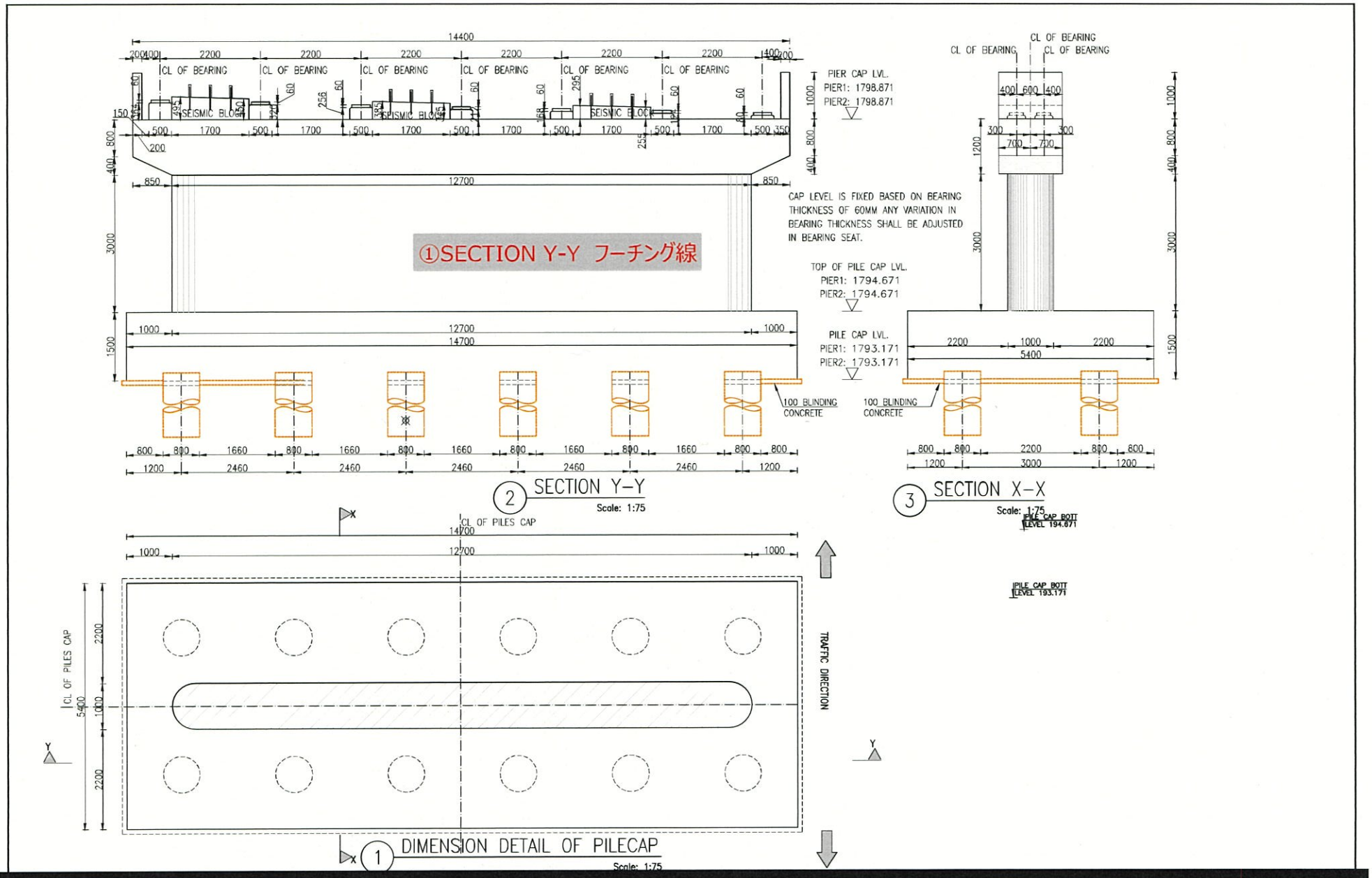


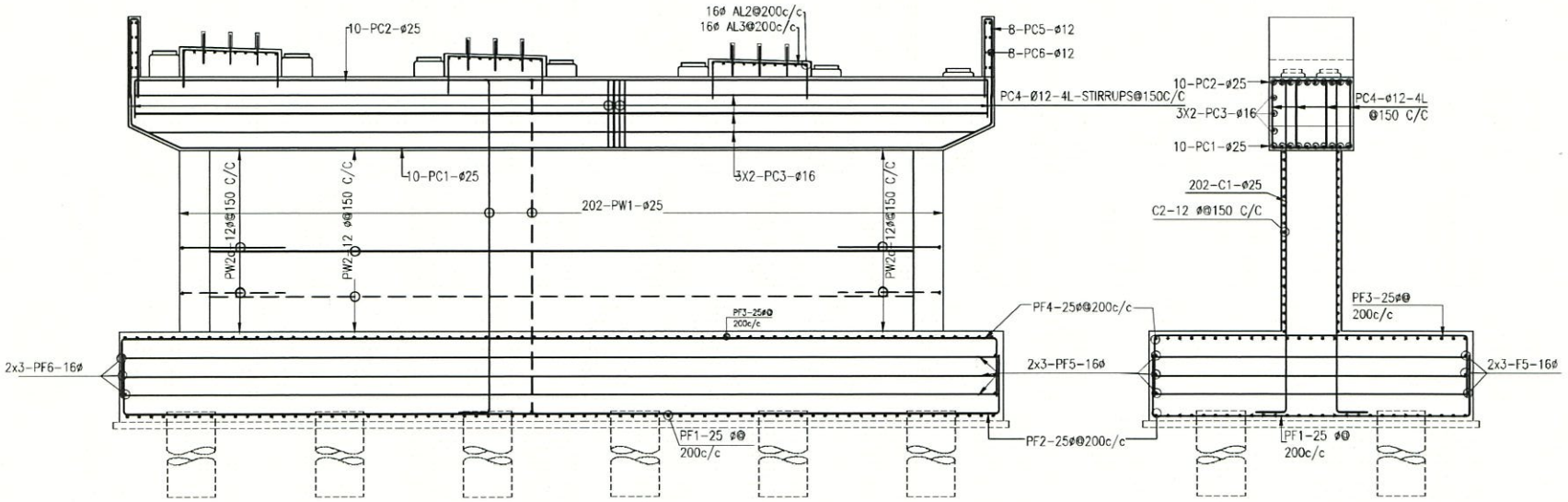
5 REINFORCEMENT OF DETAILS OF SEC.(G-G)
Scale: 1:50

6 REINFORCEME[redacted]H)
:50

①壁中止め筋追加
②フーチング中止め筋追加

[redacted]


①SECTION Y-Y フーチング線
CAP LEVEL IS FIXED BASED ON BEARING THICKNESS OF 60MM ANY VARIATION IN BEARING THICKNESS SHALL BE ADJUSTED IN BEARING SEAT.
PIER CAP LVL.
PIER1: 1798.871
PIER2: 1798.871
TOP OF PILE CAP LVL.
PIER1: 1794.671
PIER2: 1794.671
PILE CAP LVL.
PIER1: 1793.171
PIER2: 1793.171
100 BLINDING CONCRETE
CL OF BEARING
SEISMIC BLOCK
2 SECTION Y-Y
Scale: 1:75
3 SECTION X-X
Scale: 1:75
PILE CAP BOTT LEVEL 194.671
PILE CAP BOTT LEVEL 193.171
CL OF PILES CAP
TRAFFIC DIRECTION
1 DIMENSION DETAIL OF PILECAP
Scale: 1:75



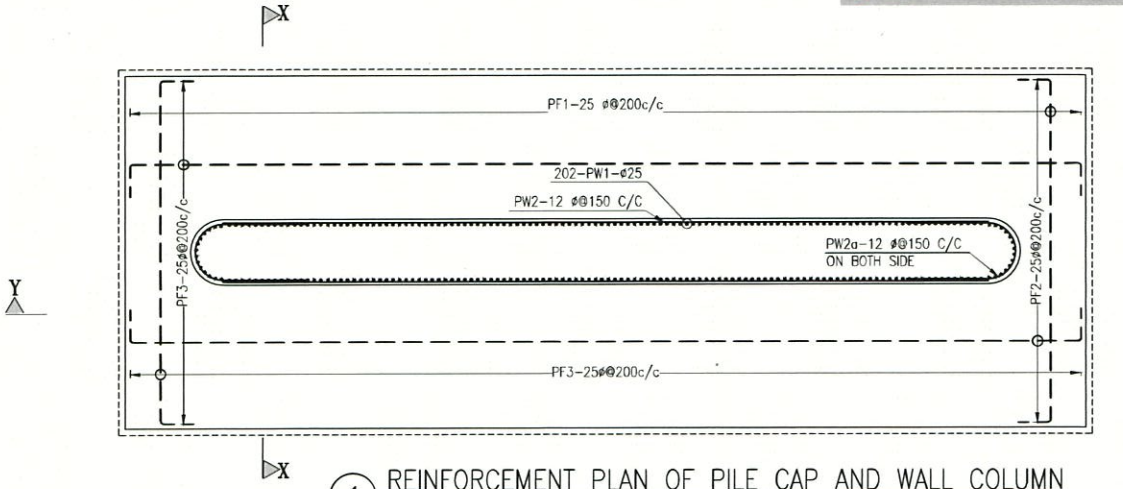
2 REINFORCEMENT DETAILS OF SECTION Y-Y

Scale: 1:75

3 REINFORCEMENT DETAILS OF SECTION X-X

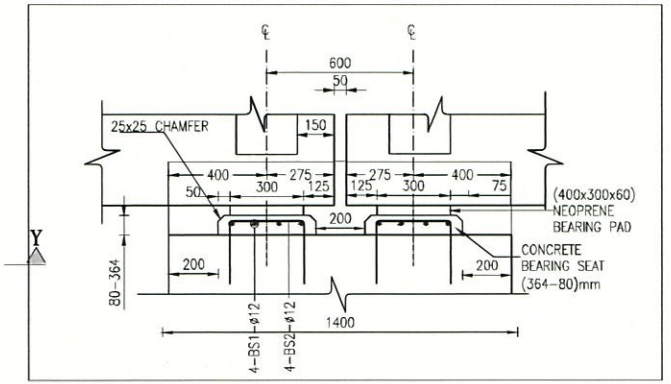
Scale: 1:75

①壁、フーチング巾止め筋追加



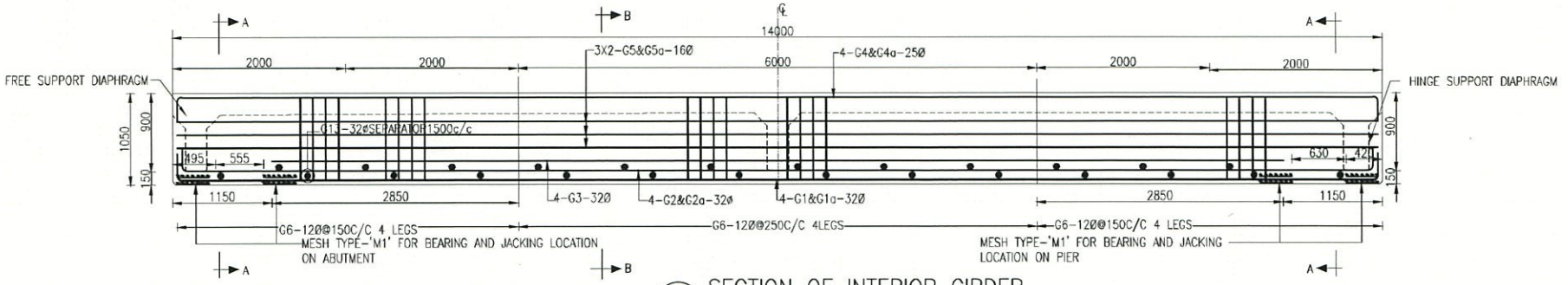
1 REINFORCEMENT PLAN OF PILE CAP AND WALL COLUMN

Scale: 1:75



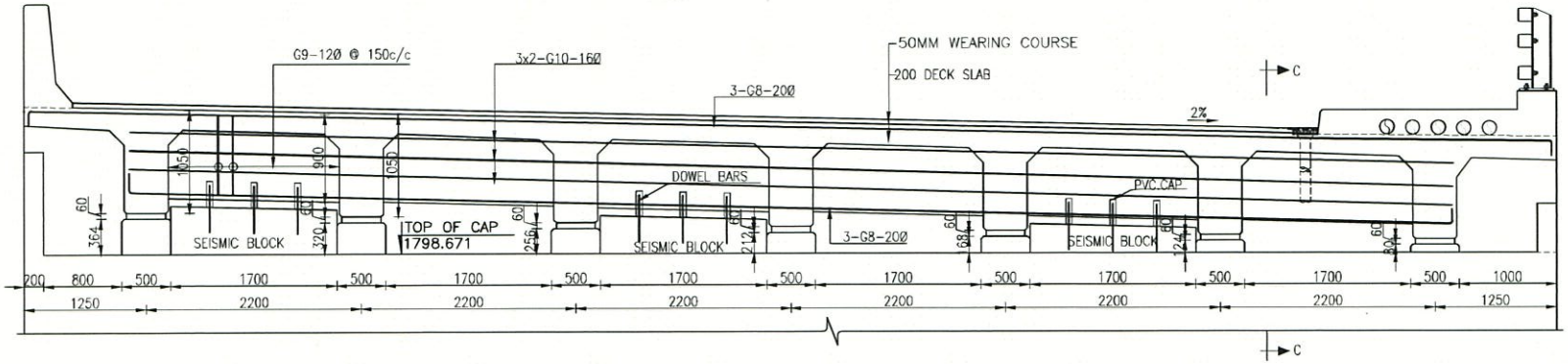
4 REINFORCEMENT DETAILS OF SECTION Z-Z

Scale: 1:20



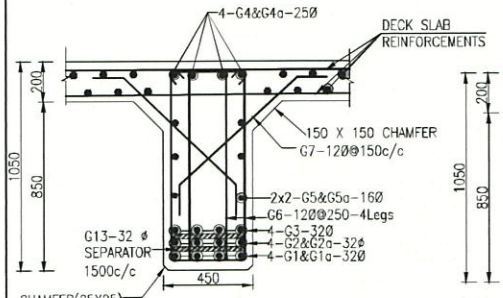
1 SECTION OF INTERIOR GIRDER

Scale: 1:50



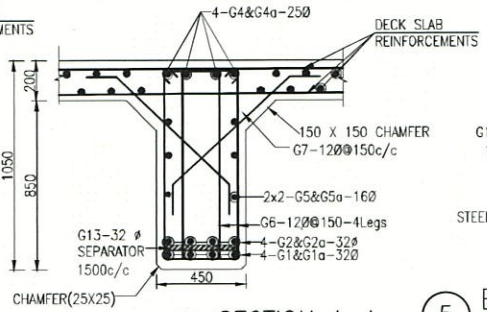
2 LONG SECTION OF DIAPHRAGM IN HINGE SUPPORT

Scale: 1:50



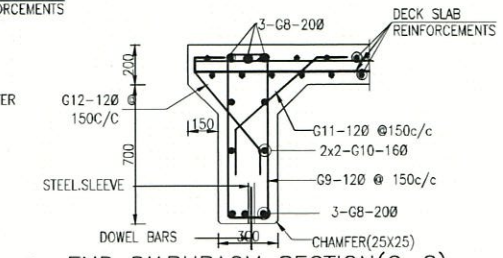
3 SECTION B-B

Scale: 1:25



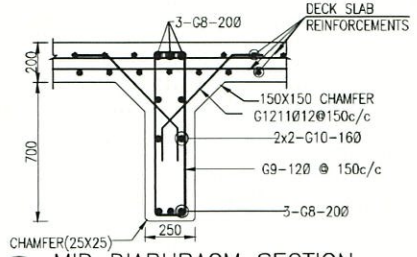
4 SECTION A-A

Scale: 1:25



5 END DIAPHRAGM SECTION(C-C)

Scale: 1:25

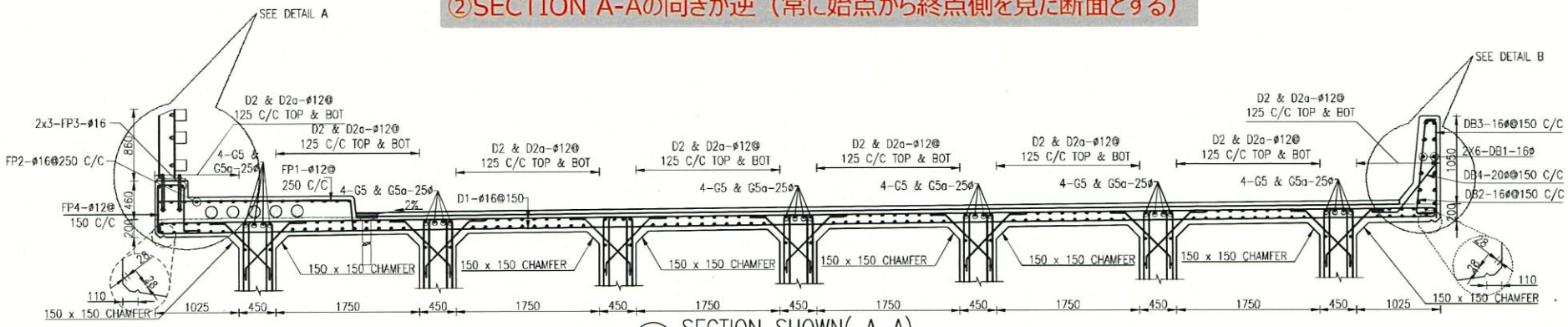


6 MID DIAPHRAGM SECTION

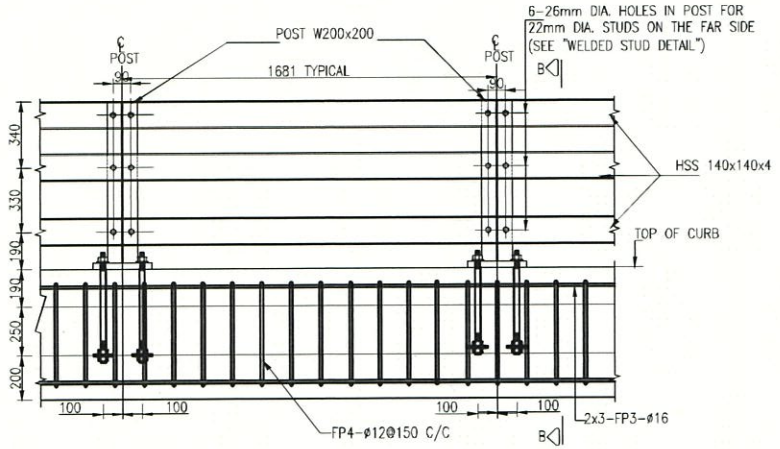
Scale: 1:25

①SECTION B-B,A－Aの桁巾450⇒500

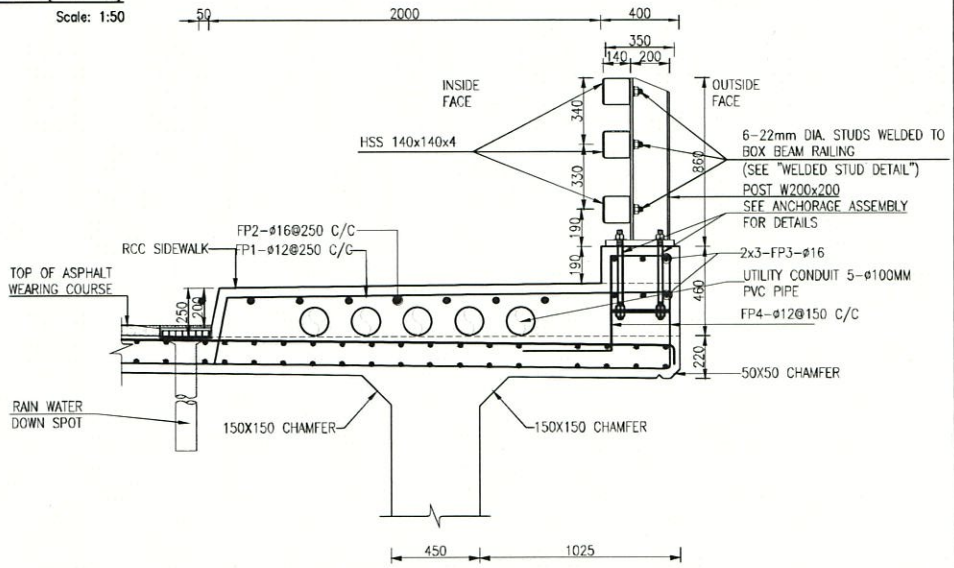
①床版巾止め筋追加
②SECTION A-Aの向きが逆（常に始点から終点側を見た断面とする）



2 SECTION SHOWN(A–A)
Scale: 1:50



3 RAILING SECTIONAL ELEVATION
Scale: 1:25



4 SECTION SHOWN(B–B)
Scale: 1:25

①数量計算ミス、配筋図との不整合が散見される。
（例：AF1の数量，P1の鉄筋径25⇒20）再チェックを行うこと
②（推奨）最小部材ごとに集計することを推奨する
③集計表の最後に合計を追加
④橋梁全体数量の集計表追加
⑤D＜20㎜とD≧20㎜に分けて集計（単価が異なるため）

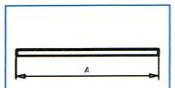
											TOTAL LENGTH (M)	UNIT WT.(KG/M)	TOTAL WT.(KG)	REMARKS
16	AF3	1	85	85	21	6850	800	800			8450	718.25	1.58	1133.88	
16	AF4	1	36	36	11	10900	800				11700	421.20	1.58	664.94	
16	AF4a	1	36	36	11	6450	800				7250	261.00	1.58	412.03	
16	AF5	1	8	8	1	11700					11700	93.60	1.58	147.76	
16	AF5a	1	8	8	1	5650					5650	45.20	1.58	71.36	
16	AF6	1	8	8	1	6850					6850	54.80	1.58	86.51	
25	AS1	1	105	105	11	3500	500				4000	420.00	3.85	1618.75	
25	AS1a	1	105	105	11	2600	300				2900	304.50	3.85	1173.59	
25	AS2	1	105	105	11	4500	500				5000	525.00	3.85	2023.44	
25	AS2a	1	105	105	11	1600	300				1900	199.50	3.85	768.91	
16	AS3	1	19	19	11	11400	300				11700	222.30	1.58	350.94	
16	AS3a	1	24	24	11	5000	300				5300	127.20	1.58	200.81	
16	AS4	1	24	24	11	11400	300				11700	280.80	1.58	443.29	
16	AS4a	1	24	24	11	5000	300				5300	127.20	1.58	200.81	
16	AC1	1	20	20	11	11400	300				11700	234.00	1.58	369.41	
16	AC1a	1	20	20	11	5000	300				5300	106.00	1.58	167.34	
16	AC2	1	6	6	1	11400					11400	68.40	1.58	107.98	
16	AC2a	1	6	6	1	5000					5000	30.00	1.58	47.36	
16	AB1	1	9	9	1	11400					11400	102.60	1.58	161.97	
16	AB1a	1	9	9	1	5000					5000	45.00	1.58	71.04	
16	AB2	1	78	78	21	2050	200	100			2350	183.30	1.58	289.37	
16	AB3	1	78	78	27	200	2050	700			2950	230.10	1.58	363.25	
12	AE1	2	14	28	1	1200					1200	33.60	0.89	29.84	
12	AE2	2	12	24	1	1000					1000	24.00	0.89	21.31	
20	AP1	1	189	189	21	100	3900	100			4050	765.45	2.47	1888.11	
12	AP2	1	47	47	1	11700					11700	549.90	0.89	488.31	
12	AP2a	1	50	50	1	3900					3900	195.00	0.89	173.16	
12	AP3	1	15	15	0	11700					11700	175.50	0.89	155.84	
12	AP3a	1	15	15	1	3900					3900	58.50	0.89	51.95	
12	AP4	1	50	50	21	100	3900	100			4100	205.00	0.89	182.04	
16	DB1	1	12	12	1	4450					4450	53.40	1.58	84.30	
16	DSB2	1	30	30	21	1300	300	300			1900	57.00	1.58	89.98	
16	DSB3	1	30	30	21	1200	200	300			1700	51.00	1.58	80.51	
20	DB4	1	30	30	24	1100	200	300			1600	48.00	2.47	118.40	
12	FP1	1	18	18	21	300	2000	300			2600	46.80	0.89	41.56	
16	FP2	1	8	8	1	4450					4450	35.60	1.58	56.20	
16	FP3	1	30	30	36	400	340	400	200		1350	40.50	1.58	63.94	
16	FP4	1	6	6	1	4450					4450	26.70	1.58	42.15	

ONE ABUTMENT BAR BENDING SCHEDULE

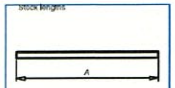
BAR DIA (MM)	BAR MARK	NO.OF MEMBER	NO.OF BAR IN MEMBER	TOTAL NO.OF BAR	SHAPE CODE	DIMENSIONS (MM) a	b	c	d	e	LENGTH (MM)	TOTAL LENGTH (M)	UNIT WT.(KG/M)	TOTAL WT.(KG)	REMARKS
16	APS1	1	4	4	1	11700					11700	46.80	1.58	73.88	
16	APS1a	1	4	4	1	4100					4100	16.40	1.58	25.89	
12	APS2	1	100	100	36	450	165	100	100		800	80.00	0.89	71.04	
16	APS3	1	8	8	1	11700					11700	93.60	1.58	147.76	
16	APS3a	1	8	8	1	4100					4100	32.80	1.58	51.78	
12	APS4	1	75	75	51	150	400	100			1250	93.75	0.89	83.25	
12	APS5	1	75	75	51	400	150	100			1250	93.75	0.89	83.25	
16	AW1	2	23	46	11	6000	500				6500	299.00	1.58	472.02	
16	AW1a	2	23	46	1	2000					2000	92.00	1.58	145.24	
16	AW2	2	24	48	21	100	5400	300			5800	278.40	1.58	439.50	
16	AW3	2	23	46	11	4000	500				4500	207.00	1.58	326.78	
16	AW3a	2	23	46	1	4000					4000	184.00	1.58	290.47	
20	AW4	2	32	64	21	100	5400	300			5750	161.00	2.47	397.13	
20	AW5	2	14	28	21	100	4500	200			4750	95.00	1.58	149.97	
16	AW6	2	10	20	21	100	4500	200			4800	67.20	3.85	259.00	
25	CF1	2	7	14	11	5500	500				6000	84.00	3.85	323.75	
25	CF1a	2	7	14	11	1950	785				2750	38.50	3.85	148.39	
16	CF2	2	10	20	1	3000					3000	60.00	1.58	94.72	
12	CF3	2	41	82	51	520	1000	100			3200	262.40	0.89	233.01	
25	CF4	4	4	16	11	5500	300				5800	92.80	3.85	357.67	
25	CF4a	4	4	16	0	2950					2950	47.20	3.85	181.92	
12	ABS1	7	8	56	21	400	100	100			600	33.60	0.89	29.84	
12	ABS2	7	8	56	21	300	100	100			500	28.00	0.89	24.86	
25	DOWEL	3	2	6	11	1100	200				1300	7.80	3.85	30.06	
16	RB1	3	7	21	21	800	500	500			1800	37.80	1.58	59.67	
16	RB2	3	5	15	21	1600	500	500			2600	39.00	1.58	61.57	

ONE PILE BAR BENDING SCHEDULE

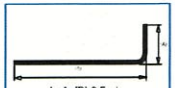
BAR DIA (MM)	BAR MARK	NO.OF MEMBER	NO.OF BAR IN MEMBER	TOTAL NO.OF BAR	SHAPE CODE	DIMENSIONS (MM) a	b	c	d	e	LENGTH (MM)	TOTAL LENGTH (M)	UNIT WT.(KG/M)	TOTAL WT.(KG)	REMARKS
20	20	P1	1	20	20	11	11400	300				11700	234.00	2.47	577.20
20	20	P1a	1	20	20	11	5500	300				5800	116.00	2.47	286.13
12	12	S1	1	1	1	77	650	75	257			514900	514.90	0.89	457.23



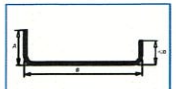
SHAPE CODE 00



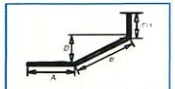
SHAPE CODE 01



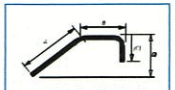
SHAPE CODE 11



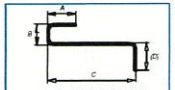
SHAPE CODE 21



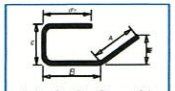
SHAPE CODE 24



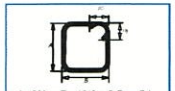
SHAPE CODE 27



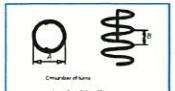
SHAPE CODE 32



SHAPE CODE 36



SHAPE CODE 51



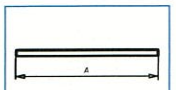
SHAPE CODE 77

ONE ABUTMENT BAR BENDING SCHEDULE

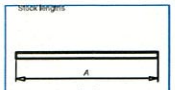
BAR DIA (MM)	BAR MARK	NO.OF MEMBER	NO.OF BAR IN MEMBER	TOTAL NO.OF BAR	SHAPE CODE	DIMENSIONS (MM)					LENGTH (MM)	TOTAL LENGTH (M)	UNIT WT.(KG/M)	TOTAL WT.(KG)	REMARKS
						a	b	c	d	e					
25	PF1	1	74	74	21	4650	800	800			6200	458.80	3.85	1768.29	
25	PF2	1	25	25	11	10900	800				11700	292.50	3.85	1127.34	
25	PF2a	1	25	25	11	4900	800				5700	142.50	3.85	549.22	
25	PF3	1	74	74	21	4650	800	800			6200	458.80	3.85	1768.29	
25	PF4	1	25	25	11	10900	800	800			11700	292.50	3.85	1127.34	
25	PF4a	1	25	25	11	4900	800				5700	142.50	3.85	549.22	
16	PF5	1	6	6	1	11700					11700	70.20	1.58	110.82	
16	PF5a	1	6	6	1	3650					3650	21.90	1.58	34.57	
16	PF6	1	6	6	1	4650					4650	27.90	1.58	44.04	
25	PW1	1	202	202	21	5550	500	300			6300	1272.60	3.85	4904.82	
12	PW2	1	20	20	1	11700					11700	234.00	0.89	207.79	
12	PW2a	2	20	40	67	3800					3800	152.00	0.89	134.98	
25	PC1	1	10	10	11	1200	10500				11700	117.00	3.85	450.94	
25	PC1a	1	10	10	11	1200	5050				6250	62.50	3.85	240.89	
25	PC2	1	10	10	11	700	11000				11700	117.00	3.85	450.94	
25	PC2a	1	10	10	11	700	4550				5250	52.50	3.85	202.34	
16	PC3	1	10	10	1	11700					11700	117.00	1.58	184.70	
12	PC4	1	190	190	51	1100	800	100			3950	750.50	0.89	666.44	
12	PC5	2	8	16	21	1000	100	1000			2100	33.60	0.89	29.84	
12	PC6	2	8	16	1	1300					1300	20.80	0.89	18.47	
12	ABS1	14	8	112	21	400	100	100			600	67.20	0.89	59.67	
12	ABS2	14	8	112	21	300	100	100			500	56.00	0.89	49.73	
25	DOWEL	3	2	6	11	1100	200				1300	7.80	3.85	30.06	
16	RB1	3	8	24	21	1300	500	500			2300	55.20	1.58	87.14	
16	RB2	3	7	21	21	1600	500	500			2600	54.60	1.58	86.20	

ONE PILE BAR BENDING SCHEDULE

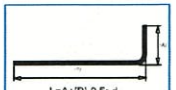
BAR DIA (MM)	BAR MARK	NO.OF MEMBER	NO.OF BAR IN MEMBER	TOTAL NO.OF BAR	SHAPE CODE	DIMENSIONS (MM)					LENGTH (MM)	TOTAL LENGTH (M)	UNIT WT.(KG/M)	TOTAL WT.(KG)	REMARKS
						a	b	c	d	e					
25	P1	1	20	20	11	11400	300				11700	234.00	3.85	901.88	
25	P1a	1	20	20	11	9900	300				10200	204.00	3.85	786.25	
12	S1	1	1	1	77	650	75	287			575000	575.00	0.89	510.60	



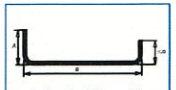
SHAPE CODE 00



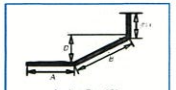
SHAPE CODE 01



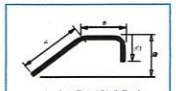
SHAPE CODE 11



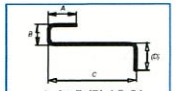
SHAPE CODE 21



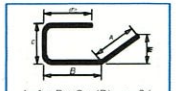
SHAPE CODE 24



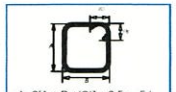
SHAPE CODE 27



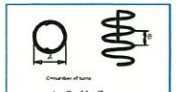
SHAPE CODE 32



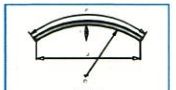
SHAPE CODE 36



SHAPE CODE 51



SHAPE CODE 77



SHAPE CODE 67

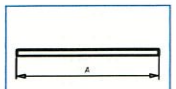
ONE GIRDER AND DIAPHRAGM BAR BENDING SCHEDULE

BAR DIA (MM)	BAR MARK	NO.OF MEMBER	NO.OF BAR IN MEMBER	TOTAL NO.OF BAR	SHAPE CODE	DIMENSIONS (MM)					LENGTH (MM)	TOTAL LENGTH (M)	UNIT WT.(KG/M)	TOTAL WT.(KG)	REMARKS
						a	b	c	d	e					
32	G1	7	4	28	11	11400	300				11700	327.60	6.31	2068.69	
32	G1a	7	4	28	11	4200	300				4500	126.00	6.31	795.65	
32	G2	7	4	28	11	11400	300				11700	327.60	6.31	2068.69	
32	G2a	7	4	28	11	4200	300				4500	126.00	6.31	795.65	
32	G3	7	4	28	0	11700					11700	327.60	6.31	2068.69	
25	G4	7	4	28	11	11400	300				11700	327.60	3.85	1262.63	
25	G4a	7	4	28	11	3850	300				4150	116.20	3.85	447.85	
16	G5	7	4	28	1	11700					11700	327.60	1.58	517.17	
16	G5a	7	4	28	1	3100					3100	86.80	1.58	137.03	
12	G6	7	156	1092	51	990	270	100			2700	2948.40	0.89	2618.18	
12	G7	7	186	1302	24	150	790	150			1100	1432.20	0.89	1271.79	
20	G8	3	6	18	1	13600					13600	244.80	2.47	603.84	
12	G9	18	12	216	51	200	820	100			2200	475.20	0.89	421.98	
16	G10	3	4	12	1	13600					13600	163.20	1.58	257.64	
12	G11	12	12	144	24	150	650	150			950	136.80	0.89	121.48	
12	G12	6	12	72	36	150	100	300	100		650	46.80	0.89	41.56	
32	G13	7	25	175	1	300					300	52.50	6.31	331.52	
32	G8	7	25	175	1	300					300	52.50	6.31	331.52	
8	MESH	7	16	112	21	65	370	65			500	56.00	0.39	22.10	

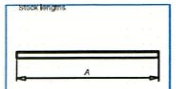
DECK BAR BENDING SCHEDULE

BAR DIA (MM)	BAR MARK	NO.OF MEMBER	NO.OF BAR IN MEMBER	TOTAL NO.OF BAR	SHAPE CODE	DIMENSIONS (MM)					LENGTH (MM)	TOTAL LENGTH (M)	UNIT WT.(KG/M)	TOTAL WT.(KG)	REMARKS
						a	b	c	d	e					
16	DS1	1	176	176	11	100	11600				11700	2059.20	1.58	3250.79	
16	DS1a	1	176	176	11	100	4800				4900	862.40	1.58	1361.44	
12	DS2	1	200	200	1	11700					11700	2340.00	0.89	2077.92	
12	D2a	1	100	100	1	4500					4500	450.00	0.89	399.60	
12	FP1	1	56	56	21	2300	250	300			2850	159.60	0.89	141.72	
16	FP2	1	16	16	0	11700					11700	187.20	1.58	295.53	
16	FP2a	1	8	8	0	4700					4700	37.60	1.58	59.36	
12	FP3	1	93	93	32	300	500	300	500		1600	148.80	0.89	132.13	
16	FP4	1	12	12	0	11700					11700	140.40	1.58	221.65	
16	FP4a	1	6	6	0	4700					4700	28.20	1.58	44.52	
16	DB1	1	24	24	0	11700					11700	280.80	1.58	443.29	
16	DB1a	1	12	12	1	4700					4700	56.40	1.58	89.04	
16	DSB2	1	93	93	21	1300	300	300			1900	176.70	1.58	278.95	
16	DSB3	1	93	93	21	1200	200	300			1700	158.10	1.58	249.59	
20	DB4	1	93	93	24	1100	200	300			1600	148.80	2.47	367.04	

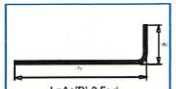
SHAPE CODE 99



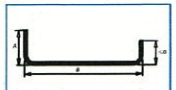
SHAPE CODE 00



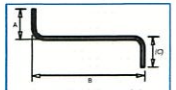
SHAPE CODE 01



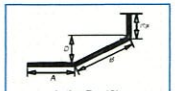
SHAPE CODE 11



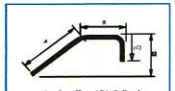
SHAPE CODE 21



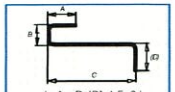
SHAPE CODE 23



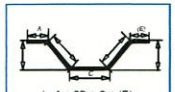
SHAPE CODE 24



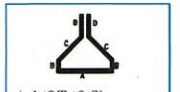
SHAPE CODE 27



SHAPE CODE 32



SHAPE CODE 46



SHAPE CODE 98