



Site Technical Query - Form

SN1809-0000/XE.FRM/0001 Rev 4 03/02/2021

TQ Number:		Project:	
CW2148472 -A010- 0043		Oyu Tolgoi Underground Project	
A. To be completed by or on behalf of the Contractor			
Contractor/Sub-Contractor Name:	MCS International	Date Response Required: (dd/mm/yyyy)	06/13/2022
Contract Title:	Haulage Truck Workshop /C-004D/	Plant Area & No:	1883
Contract No.	CW2148472	Contractor TQ Number:	TWS-0415-TQ-0043
Discipline Codes (Mandatory) D1 (CSA) - <input type="checkbox"/> D2 (MP) - <input checked="" type="checkbox"/> D3 (E&I) - <input type="checkbox"/> D4 (Other) - <input type="checkbox"/>			
Description of Technical Query (List affected drawings and specifications):			
Subject: Proposed sprinkler support modification for service bay 1			
<p>Due to the existing cable tray, sprinkler pipe support of 1883-FW-2665-G2F-001"-NI, 1883-FW-2666-G2F-001"-NI, 1883-FW-2667-G2F-001"-NI, 1883-FW-2668-G2F-001"-NI, 1883-FW-2669-G2F-001"-NI and 1883-FW-2670-G2F-001"-NI will not able to install around cable tray that already exists.</p>			
<input type="checkbox"/> Routine <input checked="" type="checkbox"/> Urgent Refer Technical Query instructions			
Proposed Action (List all attachments)			
<p>Proposal 1. Due to the existing cable tray, the contractor proposes that the designed rockbolt of F1 supports be replaced with M20 threaded rod with hilti HIT-RE500-V3 for support of sprinkler pipe in Service Bay 1. Please see attachments 1 and 2 for more information.</p> <p>Proposal 2. The sprinkler support and designed pipes of 1883-FW-2665-G2F-001"-NI, 1883-FW-2666-G2F-001"-NI, 1883-FW-2667-G2F-001"-NI, 1883-FW-2668-G2F-001"-NI, 1883-FW-2669-G2F-001"-NI and 1883-FW-2670-G2F-001"-NI will be modified to design for the existing cable tray supports. For more information, please refer to attachments 3 and 4.</p>			
Attachments:			
1. 1883-50-T1-1105_1 (Proposal 1) 2. 0000-40-B1-8005_2RL 3. 1883-50-T1-1105_1 (Proposal 2) 4. Design proposal 2 5. 1883-65-K2-1104_2R1 6. TWS-0726-SUR-0038			
Effect on cost (USD):	YES		
Effect on schedule (Days):	NO		
Effect on quality:	NO		
Requested by (Name):	Zoljargal N.	Position:	MP Field engineer
Signature:		Date: (dd/mm/yyyy)	06/10/2022

Proposed option#1 is accepted with following comments due to live cables and independence of piping support, :

1. The substitution of M25 rock bolt is acceptable subject to provision of M24 grade 8.8 HDG anchor rods with Hilti HIT RE-500 adhesive and proof/pull test at 45 kN;
2. Anchor rod embedment shall be 700 mm min into sound rock and projection to suit in the field;
3. Contractor shall be considered to keep clearances in between support chain and cable tray according to site standard and requirements. Should not be touched with each other;
4. Redline the related drawings accordingly.

Disclaimer:

Acceptance or rejection of this TQ is only related with technical aspects.

If Cost or Schedule Impact are associated with this TQ, it must be discussed separately with Jacobs Contract team.

C. Engineering Decision		D. Information		
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accept with comments	Reject	Design Change Distribute to: Design Author DA	Cost Impact Distribute to: Contracts, Proj. Controls & Construction Manager	Schedule Impact Distribute to: Proj. Controls & Construction Manager

REVIEWER		APPROVER		CONSTRUCTION MANAGER	
Field Engineer OR Lead Engineer		Lead Engineer OR Chief of Engineering		(If Cost and/or Schedule Impact)	
Date: (dd/mm/yyyy)		Date: (dd/mm/yyyy)		Date: (dd/mm/yyyy)	

1. FOR GENERAL NOTES REFER TO DRAWING N° 1883-50-T1-1103.
2. FOR SPRINKLER HEAD TYPE REFER TO DRG. 1883-40-B1-1103.

NX : DENOTES NOTE NUMBER X
S1 : SUPPORT SD-101
S2 : SUPPORT SD-132 / TFCO
S3 : SUPPORT SD-106
S5 : SUPPORT SD-181
S6 : SUPPORT SD-161
S7 : SUPPORT SD-165
S8 : SUPPORT SD-103
S9 : SUPPORT SD-121

SCALE 1:75 (A1) 1000

JACOBS

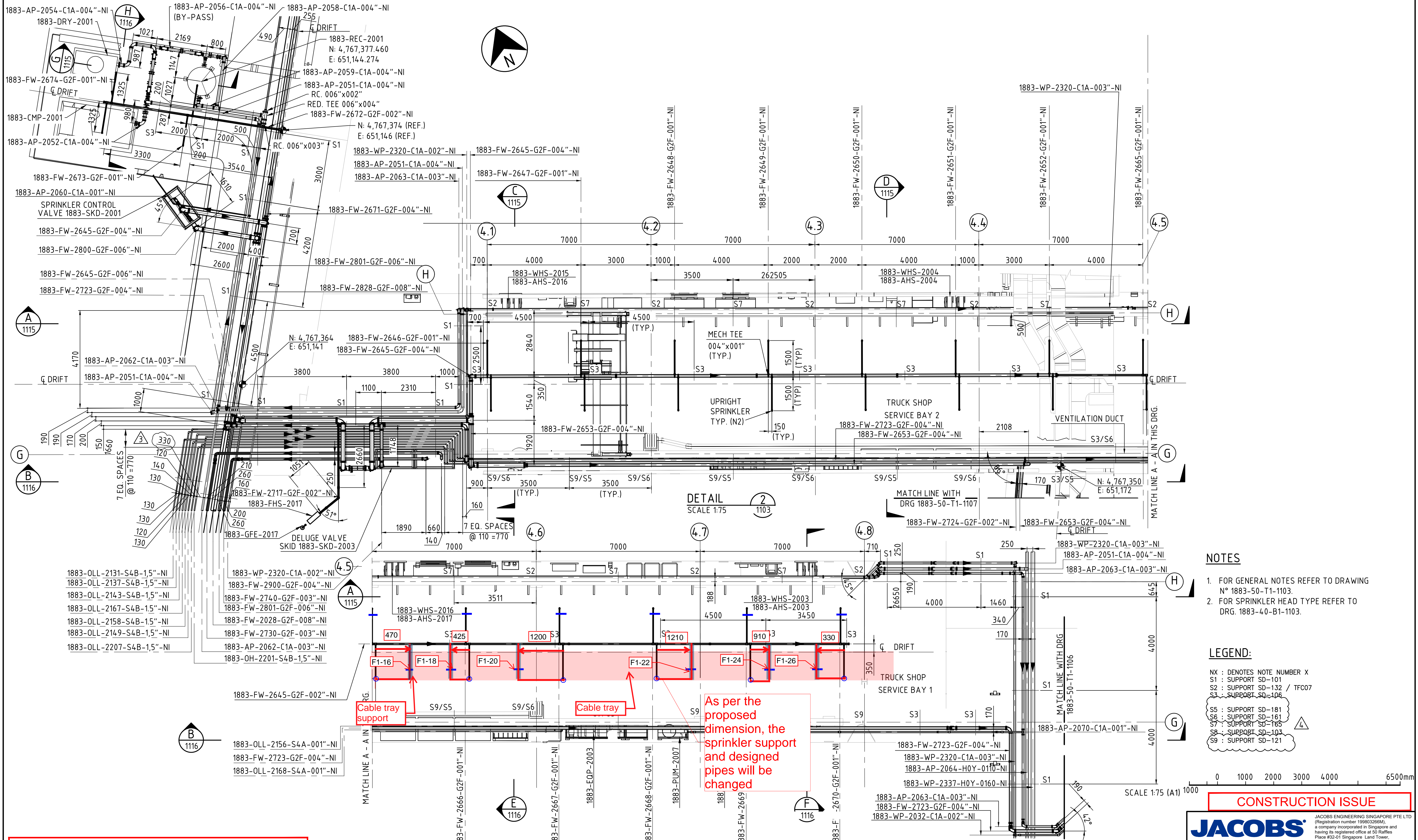
Jacobs Document No. SN1809-1883/PP.DRG/1103

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS
0	10.07.18	ISSUED FOR CONSTRUCTION	MP LT	CC EM						1883-50-T1-1115	SERVICE BAY 1 /SERVICE BAY 2 - SECTIONS
1	23.10.18	ISSUED FOR CONSTRUCTION	BM RR	RR EM						1883-50-T1-1116	SERVICE BAY 1 /SERVICE BAY 2 - SECTIONS
2	14.09.20	ISSUED FOR CONSTRUCTION	MB BB	BM TK						1883-40-B1-1103	SPRINKLER HEAD TYPE
3	28.09.20	ISSUED FOR CONSTRUCTION	TM AK	TB SM						1883-50-T1-1103	GENERAL ARRANGEMENT - PLAN
4	23.04.22	ISSUED FOR CONSTRUCTION	MS BB	E0 BM						1883-50-T1-1107	LUNCH ROOM / OFFICES DETAIL
										0000-50-N1-1110 TO 1120	SPECIAL PIPE SUPPORTS

[illegible]


PRODUCED BY	DESIGNED BY M.PONCE	DRAWN BY M. PONCE
PROJECT NO SN1809	CHECK DESIGN L. TORRES	CHECK DRAWING L. TORRES
CONTRACT NO	LEAD ENGINEER C.CID	APPROVAL DATE 23.10.18
DRAWING SIZE A1	AREA PROJECT ENGINEER	ENGINEERING MANAGER E. MARIN
PLOT SCALE	PROJECT MANAGER	APPROVAL DATE 23.10.18
CAD FILE NAME 1883-50-T1-1105.DWG	CLIENT	APPROVAL DATE

	OYU TOLGOI UNDERGROUND PROJECT UNDERGROUND WORKSHOPS TRUCK SHOP HAULAGE LEVEL SERVICE BAY 1 & 2 - DETAIL		
R			
	SCALE	DRAWING NUMBER	REV.
	N.T.S.	1883-50-T1-1105	4



CAUTION - PROJECT DRAWING - NOT AS BUILT

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS
0	10.07.18	ISSUED FOR CONSTRUCTION	MP LT	CC EM	/			/		1883-50-T1-115	SERVICE BAY 1/SERVICE BAY 2 - SECTIONS
1	23.10.18	ISSUED FOR CONSTRUCTION	BM RR	RR EM	/			/		1883-50-T1-116	SERVICE BAY 1/SERVICE BAY 2 - SECTIONS
2	14.09.20	ISSUED FOR CONSTRUCTION	MB BB	BM TK	/			/		1883-40-B1-1103	SPRINKLER HEAD TYPE
3	28.09.20	ISSUED FOR CONSTRUCTION	TM AK	TB SM	/			/		1883-50-T1-1103	GENERAL ARRANGEMENT – PLAN
4	23.04.22	ISSUED FOR CONSTRUCTION	MS BS	EO BM	/			/		1883-50-T1-1107	LUNCH ROOM / OFFICES DETAIL
						0000-50-N1-1110 TO 1120	SPECIAL PIPE SUPPORTS				



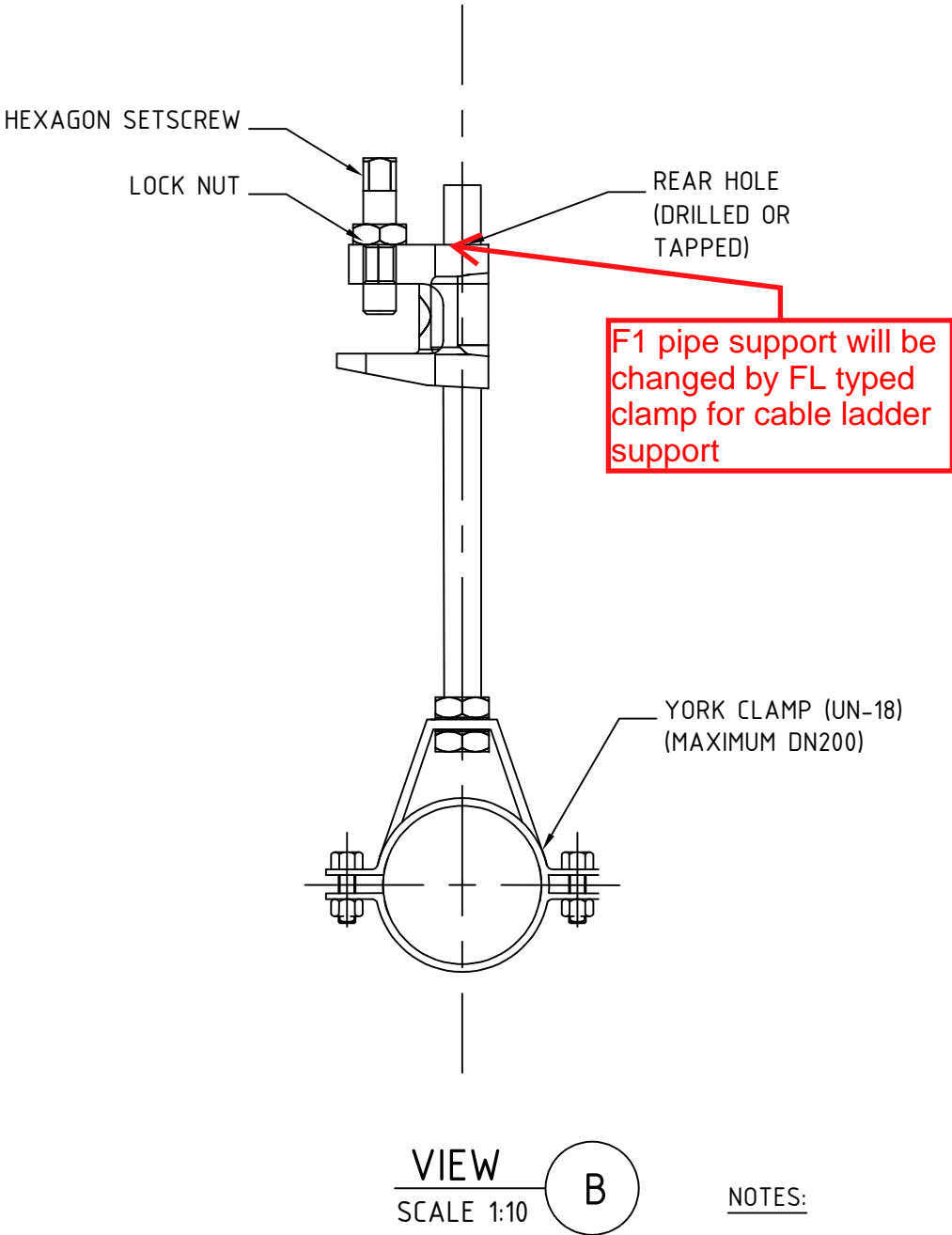
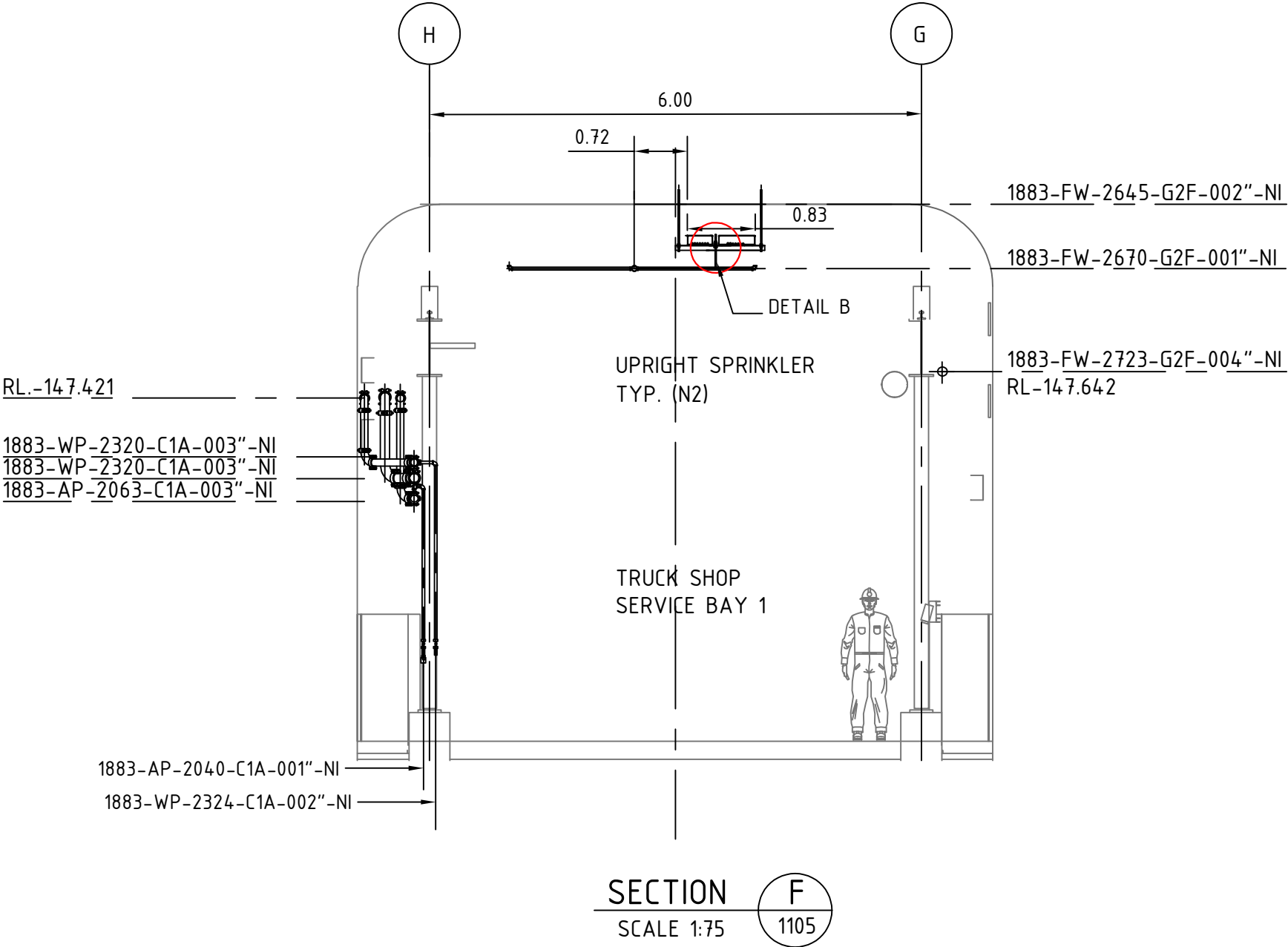
OYU TOLGOI LLC
ОЮУ ТОЛГОЙ ХХК

Disclaimer: Drawings, plans, models, designs or any other information displayed, contained in, made available or disclosed in or by this document (or its part or attachments) is owned by Oyu Tolgoi LLC and may be a proprietary of Oyu Tolgoi LLC and hence they are for the internal use of Oyu Tolgoi LLC only. Making a copy or reproduction thereof in any form or giving an access or possession of them to any other party without Oyu Tolgoi LLC's written consent or permission shall be strictly prohibited. Any violation (actual or attempted) of these terms and prohibitions shall be subject legal liabilities and Oyu Tolgoi LLC reserves its rights and entitlements to all available legal remedies.

Мэргээрээ Энхгүй баримт бичиг (скалыг түмний хэрэгсэл, нэмэгдэл)-ийн үүрэгээр, оруулсан, өөрчлөлтөө, шинэ баримт бичгийг баталж ил мэдүүлсэн гэрээ, тухайлангаа, холбоор ороогдох болон дотоод ажилын нэмэгдэлүүд Оюу Толгой 200Х ХХК-ийнхэн боловч Оюу Толгой 200Х-ийн өмчийн Монгол улсад мэдэгдэх зориолсон нь Оюу Толгой 200Х-ийнхөн гэж тодорхойлогдоно уу. Тусгай зориулалтын захираагчид Оюу Толгой 200Х-ийн бүтцийн мэдээллийн системийн талаар хяналтаас гарснаар эдийн засгийн байдал, худалдааны орлогоос хамаарах зардал, хөрөнгийн зардалтай холбоотой ажлын явцаа, төсвийн ба газрын харилцаанд хамаарах асуудлуудыг судлахад шаардлагатай болно. Бусад зориулалтын захираагчид Оюу Толгой 200Х-ийнхөн гэж тодорхойлогдоно уу. Энд хуучин баримт бичгийг оруулсныг хүлээн зөвшөөрсөн байна. МОНГОЛ УЛААНЫ ГЭРМЭНИЙН ЗӨВШӨӨДӨГ АЖИЛЧДААР ОЮУ ТӨЛГӨЙ ХХК-ЫН ДЭМЖСЭН БАРИМТ БИЧИГ.

PRODUCED BY	DESIGNED BY	DRAWN BY	OYU TOLGOI UNDERGROUND PROJECT UNDERGROUND WORKSHOPS TRUCK SHOP HAULAAGE LEVEL SERVICE BAY 1 & 2 - DETAIL
M.PONCE	M.PONCE	M. PONCE	
PROJECT NO SN1809	CHECK DESIGN L. TORRES	CHECK DRAWING L. TORRES	
CONTRACT NO	LEAD ENGINEER C.CID	APPROVAL DATE 23.10.18	
DRAWING SIZE A1	AREA PROJECT ENGINEER	ENGINEERING MANAGER E. MARIN	
PLOT SCALE	PROJECT MANAGER	APPROVAL DATE 23.10.18	
CAD FILE NAME	CLIENT	APPROVAL DATE	
1883-50-T1-1105.DWG			
			SCALE N.T.S.
			DRAWING NUMBER 1883-50-T1-1105
			REV. 4

ATTACHMENT 4. DESIGN PROPOSAL 2.



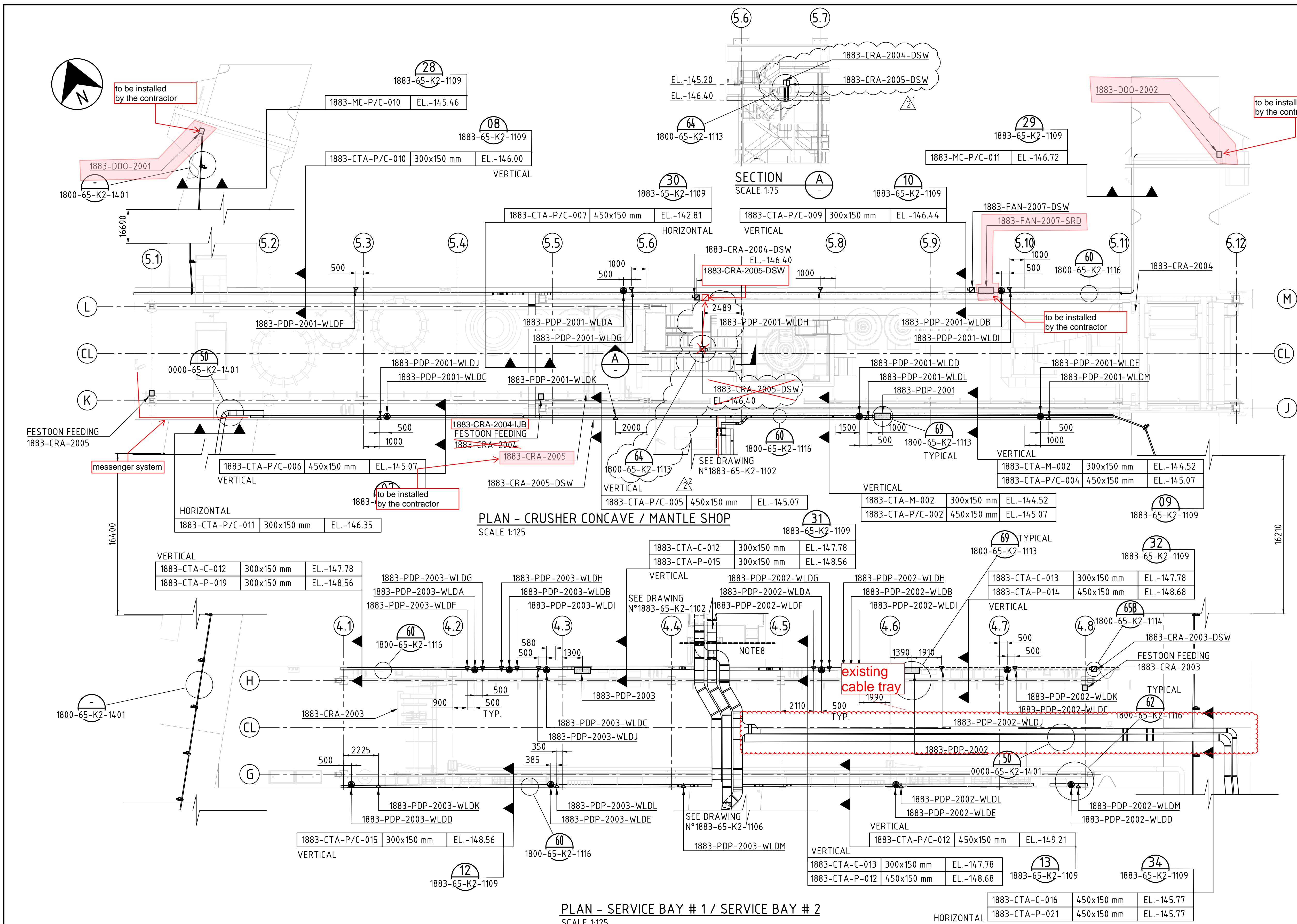
NOTES:

DISTANCES BETWEEN PIPE SUPPORTS (FOR ALL FIRE WATER PIPEWORK) SHALL NOT EXCEED THE FOLLOWING PIPEWORK SPANS FOR THE PIPE SIZES ACCORDING TO NFPA 13 SECTION 9.2:

SIZE DN & SPAN m (MAXIMUM DISTANCE)


DN32 - 3.66m
DN50 - 4.57m
DN100 - 4.57m
DN150 - 4.57m
DN200 - 4.57m

ITEM	DESCRIPTION	UNID	MTO QTY
1	1" PIPE XS WELDED STL A53 TYPE F GALV T&C	M	6
3	1" ELL 90 DEG 150# SCRDR GALV MI A197	UN	6
4	TYPE FL FLANGE CLAMP LFT050C	UN	6
5	THREATHED ROD M16X120 ASTM A325 (HDG)	UN	6
6	NUT M16 ASTM A325 EQUVALENT (HDG)	UN	12
7	C/W WASHER M16 ASTM A325 EQUVALENT (HDG)	UN	12
8	LOCK BOLT & NUT SET	UN	6
9	YORK CLAMP UN-18 DN32	UN	6



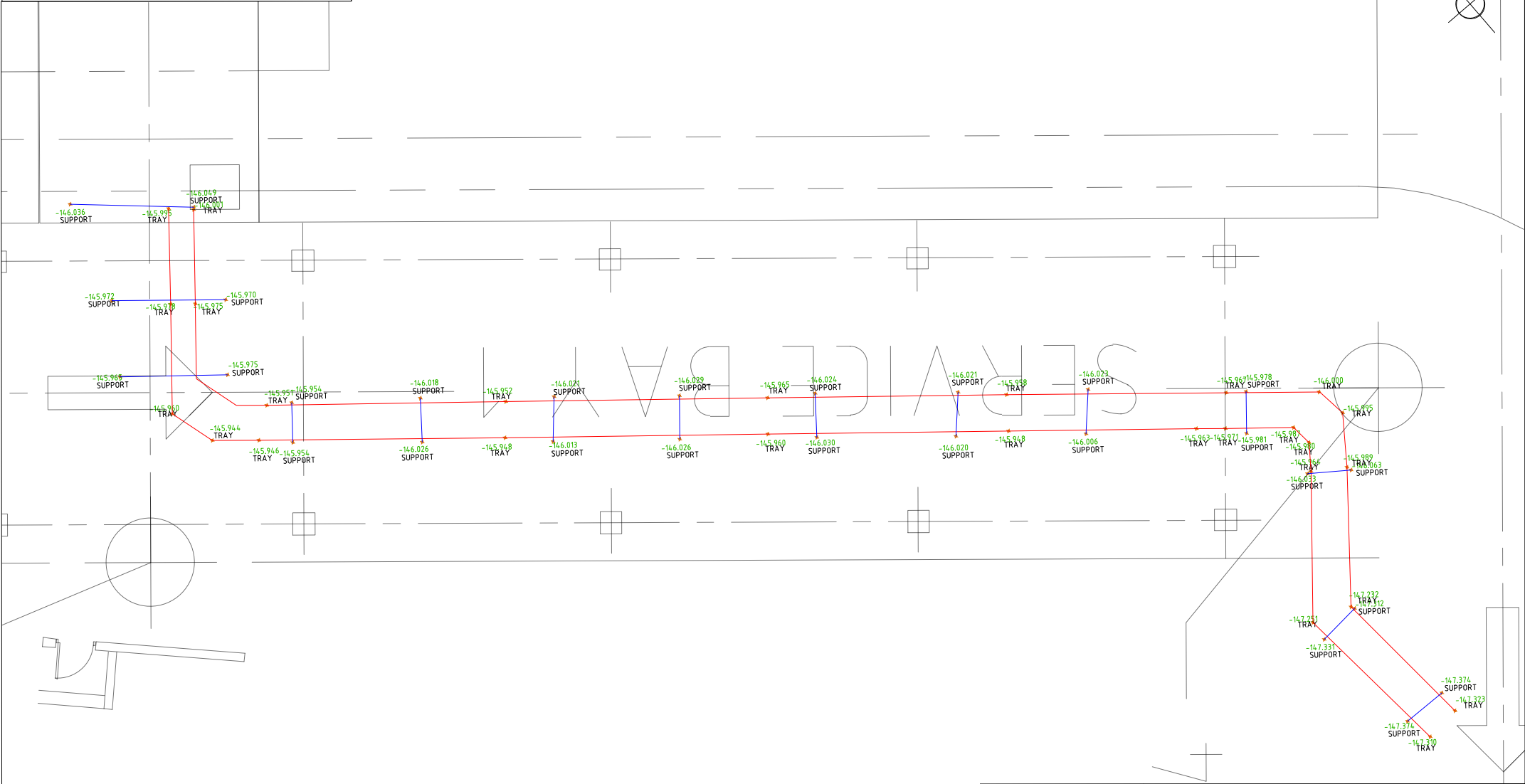
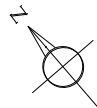
- NOTES:-**
- 1.- ALL COORDINATES AND ELEVATIONS ARE INDICATED IN METERS, IN ACORDANCE WITH THE OYU TOLGOI GRID SYSTEM (OTGS).
DIMENSIONS ARE SHOWN IN MILIMETERS UNLESS OTHERWISE STATED.
 - 2.- THE MINIMUN CLEARANCE SEPARATION BETWEEN THE PARALLEL TRAYS WILL BE 300MM TO ENABLE CABLES LAYING AND MAINTENANCE.
 - 3.- ALL CONDUIT TO BE INSTALLED OUTSIDE OF ELECTRICAL ROOMS SHALL BE SEALED ONCE THE CABLE ARE INSTALLED.
 - 4.- THE DESIGN SHALL COMPLY TO THE CABLE MINIMUM BENDING RADIUS IN ACCORDANCE TO THE VENDORRECOMMENDATION.
 - 5.- THE CABLE LADDERS HEIGHTS INDICATED CORRESPOND TO MINIMUM INSTALLATION HEIGHTS. THE CABLE LADDERS SHOULD BE INSTALLED AT THE HIGHEST POSSIBLE HEIGHT BUT RESPECTING A MINIMUM CLEARENCE OF 300mm.
 - 6.- FOR SIMBOLOGY AND LEGEND SEE DRAGING N° 1883-65-K2-1103
 - 7.- FOR INSTRUMENTATION, CONTROL AND COMMUNICATION CIRCUIT SEE DRAWINGS N° 1883-70-02-1307 AND 1883-75-A4-1301
 8. THE CABLE LADDER WILL BE INSTALLED IN TWO STAGES, IN A FIRST STAGE WILL BE BUILT THE E-ROOM AND CRUSHER CONCAVE / MANTLE SHOP CABLE LADDER AND IN A SECOND STAGE WILL BE BUILT THE REST OF THE CABLE LADDER OF THIS AREA.

CONSTRUCTION ISSUE

		JACOBS ENGINEERING SINGAPORE PTE LTD (Registration number 199803266M), a company incorporated in Singapore and having its registered office at 50 Raffles Place #32-01 Singapore Land Tower, Singapore, 048623 (the offshore Contractor)	
Jacobs Document No. SN1899-1883/EE.DLP/1104		Web: www.jacobs.com	
OYU TOLGOI UNDERGROUND PROJECT UNDERGROUND INFRASTRUCTURE AND MINING TRUCK SHOP HAULAGE LEVEL CABLE LADDER CRUSHER CONCAVE, SERVICE BAY			
<div style="border: 1px solid black; height: 100px;"></div>			
SCALE AS SHOWN		DRAWING NUMBER 1883-65-K2-1104	
		(REV. 2R1)	

REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REV.	DATE	REVISION DESCRIPTION	DES. CHK.	APPROVED	REFERENCE DRAWING No.	REFERENCE DRAWINGS
C	05/07/18	ISSUED FOR APPROVAL	MPH ECO	CRD EMR						0000-65-K2-1401	TYPICAL ELECTRICAL INSTALLATION DETAILS
0	09/07/18	ISSUED FOR CONSTRUCTION	MPH ECO	CRD EMR						1883-65-K2-1102	CABLE LADDER LAYOUT 1883-ESS-2001
1	18/07/18	RE - ISSUED FOR CONSTRUCTION	PVB ECO	CRD EMR						1883-65-K2-1103	GENERAL CABLER ROUTING LAYOUT
2	10/09/18	RE - ISSUED FOR CONSTRUCTION	PVB ECO	CRD EMR						1883-65-K2-1106	CABLE LADDER OFFICES, LUNCHROOM, WAREHOUSE
										1883-15-S1-1102	STEELWORK CRUSHER SHOP
										1883-15-S1-1112	STEELWORK SERVICE BAY

	PRODUCED BY	DESIGNED BY	DRAWN BY
	JACOBS	M.PAUVIF	M.PAUVIF
	PROJECT NO.	CHECK DESIGN	CHECK DRAWING
	SIN809	E.CELLE	E.CELLE
	CONTRACT NO.	LEAD ENGINEER	APPROVAL DATE
		C.RIVEROS	05/07/2018
DRAWING SIZE		AREA PROJECT ENGINEER	ENGINEERING M.A.
A1			E. MARIN
PLOT SCALE		PROJECT MANAGER	
CAD FILE NAME		CLIENT	APPROVAL DATA
1083-FS-K2-1104.DWG			



LEGEND





Horizontal and Height datum origin:

Point name	Coordinate and Level		
	East	North	RL
TWS29	651204.612	4767336.26	-151
TWS35	651194.146	4767338.884	-150.848
TWS36	4767345.784	651178.709	-150.382

-151.666 – Actual elevation

+ – Measured point

Used equipment: Leica TS10 Plus

 ОЮУ ТӨЛГӨЙ ХХК		Oyu tolgoi mine site, Khanbogd soum, Omnogove province, Mongolia	
		TWS project	
		Name of drawing: Measurement level of Cable Tray, Support from 0.4kV Electrical Room at Service bay 1, TWS area	
		Surveyed by: _____	Name of Area: Truck workshop - All area Type: Stake out
		Approved by: _____	WBS: 1883 Level: TWS Level
			Coordinate system : OTG system SCALE : N.S.T
			Previous drawing No: 1883-15-R1-1101 DATE :19-May-2022