

North Manchester General Hospital: Multi-Storey Car Park and Cycle Hub

Electric Vehicle Charging Point Strategy

July 2023

Turley

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4 Jul 2023

1. Introduction

- 1.1 Reducing carbon emissions from its estate is a core objective of the Manchester University NHS Foundation Trust ('MFT'). Indeed, all NHS organisations have a commitment to ensure all new builds and refurbishment projects are delivered to net zero carbon standards as outlined within the published 'Delivering a Net Zero National Health Service' (October 2020).
- 1.2 MFT also have a Sustainable Development Management Plan¹ which sets out the vision, strategy and objectives for delivering sustainable healthcare across the city of Manchester, Trafford and beyond. It sets a five-year carbon budget with the aim for a 33% reduction in carbon emissions by 2023 / 24.
- 1.3 The redevelopment of NMGH is central to the realisation of these targets with the aspiration of delivering an exemplar net zero carbon development. Primary objectives to achieve this outlined in the adopted North Manchester General Hospital Site Redevelopment Programme Strategic Regeneration Framework (SRF) include:
 - Significantly reducing energy demand and carbon emissions at source during construction and operation through appropriate design and specification; and
 - Promoting sustainable transport.
- 1.4 Sustainable connectivity and transport is one of the key priorities for MFT, as outlined in the SRF, with MFT specifically aiming to encourage sustainable and active travel wherever possible, including the following principles:
 - Create a comprehensive Green Travel Plan;
 - Provide end of journey provision for active travel, runners and cyclists (showers, dry lockers etc.); and
 - Provide infrastructure for Electric Vehicles.
- 1.5 The SRF confirms the commitment from MFT and the NHS to contributing to Manchester becoming a net zero carbon city by 2038 and underpins the redevelopment proposals proposed at NMGH.
- 1.6 This document confirms the proposed strategy in relation to the provision of electric vehicle (EV) charging points associated with the multi-storey car park and cycle hub ('MSCP') within North Manchester General Hospital.
- 1.7 The agreed strategy between Manchester University NHS Foundation Trust ('MFT') and Manchester City Council ('MCC') is for the EV charging points to be installed in two phases to reflect demand. Phase 1 will comprise 36 fast charging (7kw) EV charging points and Phase 2 will comprise the installation of an additional 64 no. fast charging

¹ The Masterplan: Making Sense of Sustainable Healthcare 2018 – 2023)

(7kw) EV charging points. These EV charging points will be in place to support staff and visitors in providing a top up for their electric vehicle.

1.8 This document confirms the location, specification, and programme of installation of the EV charging points and is accompanied by the following documents:

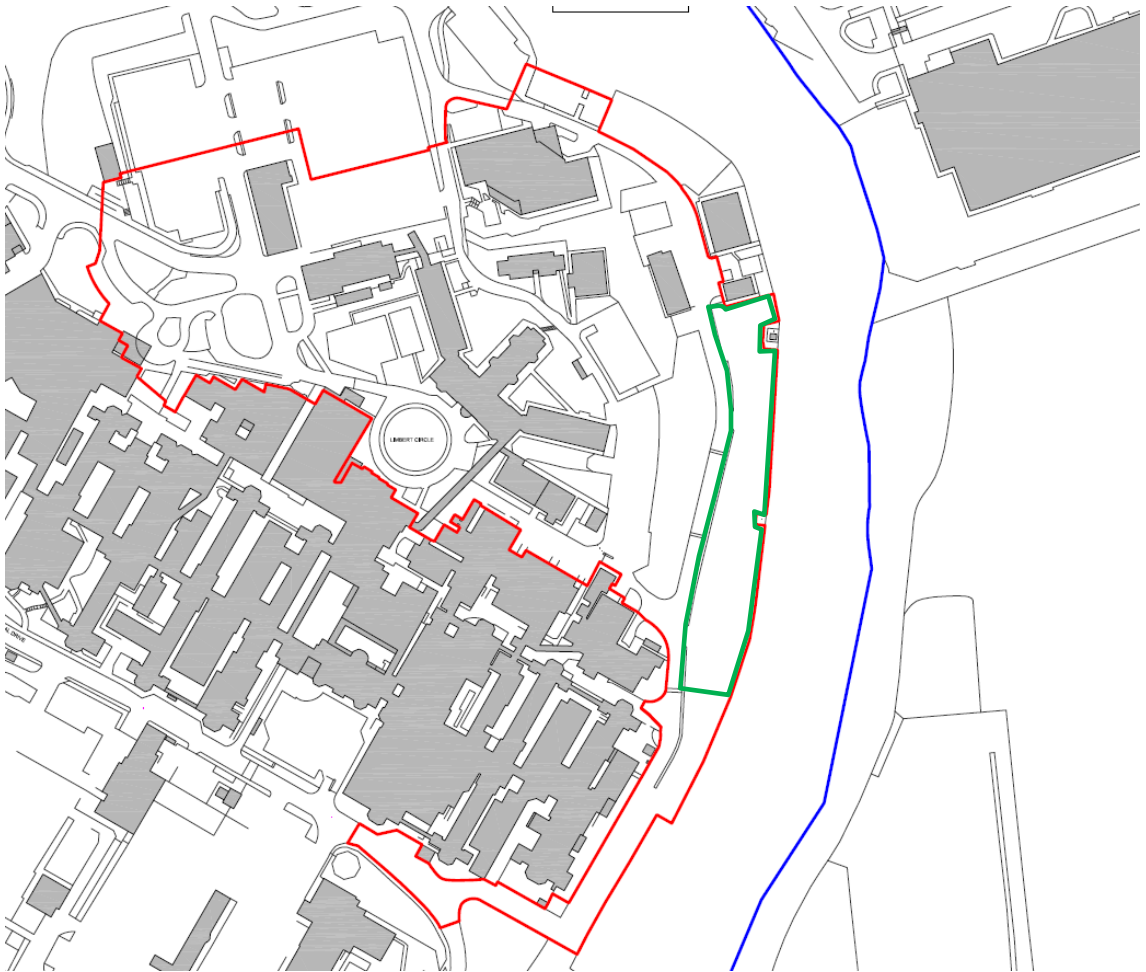
- Car Park 26 New EV Layout, drawing no. 20200-IES-NM110-XX-DR-E-6004 Rev P03 (**Appendix 1**)
- Car Park 26 Phase 1, drawing no. 20200-AFL-NM110-XX-DR-A-2019 Rev C2 (**Appendix 2**)
- Car Park 26 Phase 2, drawing no. 20200-AFL-NM110-XX-DR-A-2020 Rev C2 (**Appendix 3**)
- Lumina Specification Sheet (**Appendix 4**)
- Lumina Mounting Post (**Appendix 5**)
- Contract Programme 26.06 (doc ref. 20200-MSC-INZ-EX-PR-W), prepared by Morgan Sindall (**Appendix 6**)

2. Electric Vehicle Charging Point Strategy

Location

- 2.1 The EV charging points are proposed to be located to the east of the MSCP and cycle hub in an existing car park known as 'Car Park 26'. An extract of the site location plan is shown below with the location of Car Park 26 outlined in green.

Figure 2.1: Extract of site location plan (drawing no. 6512-SRA-MC-XX-DR-A-00800 Rev P01) with location of Car Park 26 outlined in green.



- 2.2 Car Park 26 is an existing operational car park within the NMGH estate. The MSCP and cycle hub will consolidate the existing surface car parking areas across NMGH into a single building providing 980 car parking spaces. Therefore, it is proposed to retain this area as a car park dedicated to the provision of EV charging points creating a 'Green Parking Zone'.
- 2.3 As the EV charging points are being brought forward in two phases, each phase will be located as follows:
- **Phase 1** - the installation of the first phase of EV charging points, comprising 36 no. fast charging (7kw) EV charging points, will be located within the northern

area of Car Park 26 as shown on drawing no. 20200-AFL- NM110-XX-DR-A-2019 in **Appendix 2**.

- **Phase 2** - The installation of the second phase of EV charging points, comprising 64 no. fast charging (7kw) EV charging points will be located within the remaining area of Car Park 26, as shown on drawing no. 20200-AFL-NM110-XX-DR-A-2020 Rev C2 in **Appendix 3**.

Specification

2.4 **Appendix 4** confirms the proposed specification of the EV charging points to be installed. A summary of key features is provided below:

- **Charging connector type** – Lumina Socket – Type2 Socket; Lumina Cable – Type2 connector with 4.7m cord.
- **Charging Power** – up to 7.4kW
- **Height** – 390mm
- **Depth** – 133mm
- **Width** – 155mm

2.5 **Appendix 5** provides an image of the EV charging point mounting post which is replicated in **Figure 2.2** for ease of reference. The mounting post is 1300mm in height.

Figure 2.2: EV charging point mounting post.



Programme

- 2.6 **Appendix 6** provides the programme for the installation of Phase 1 of the EV charging points. This confirms that the 36-no. fast charging EV charging points to be located in the northern area of Car Park 26 will be installed and operational in December 2023. Should this programme change, MFT will notify MCC accordingly.
- 2.7 As per the strategy agreed with MCC, the additional 64 no. EV charging points will be installed by 2025. MFT will notify MCC once these additional EV charging points are installed.
- 2.8 The number of fast charging EV charging points will be reviewed annually as part of the requirements of the Travel Plan. Any additional charging points identified as a result of these reviews will be implemented within two months of the approval of the annual agreement.

Summary

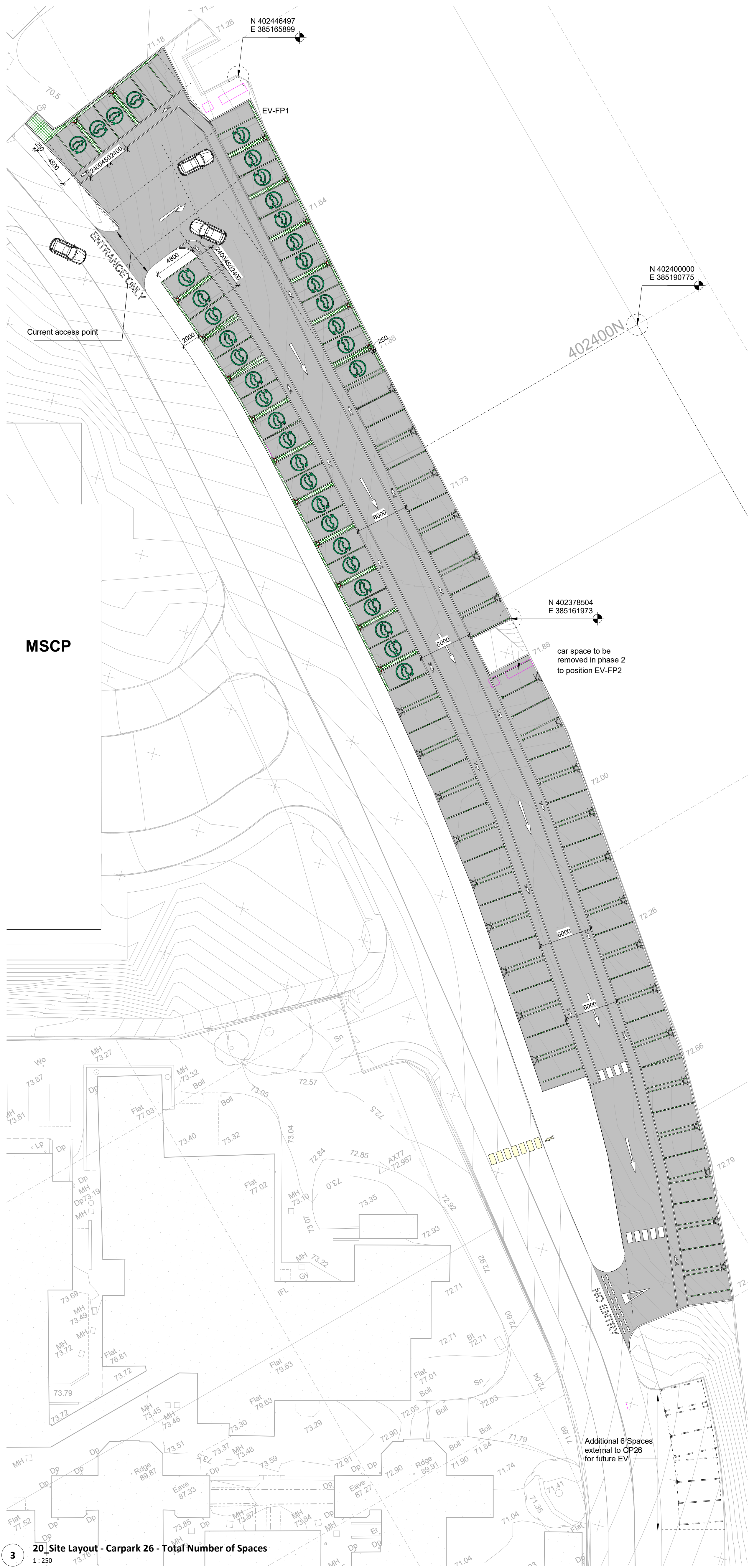
- 2.9 This EV charging point strategy has been prepared in accordance with the sustainable travel initiative at the heart of the NMGH redevelopment proposals to encourage staff and visitors of the hospital to use more sustainable modes of transport. This is also in line with 'Delivering a Net Zero NHS' which report outlines a number of interventions relating to travel and transport to achieve their net zero commitments, including the provision of sufficient EV charging facilities.
- 2.10 The creation of a 'Green Travel Zone' located adjacent to the MSCP and cycle hub will provide easy and convenient access to fast EV charging facilities for both staff and visitors.
- 2.11 Furthermore, MFT are committed to the continued investment of such facilities, where there is proven demand, to align with the key priority of achieving sustainable connectivity and transport across the MFT estate.

**Appendix 1: Car Park 26 New EV Layout,
drawing no. 20200-IES-NM110-XX-
DR-E-6004 Rev P03**



PROJECT				NMGH - MSCP			
TITLE							
Car Park 26 New EV Layout							
STATUS S4		PURPOSE OF ISSUE APPROVAL					
DRAWN BY RW		CHECKED BY RB		DATE 02.06.23			
SCALE (@A0) 1:150			PROJECT NUMBER 20200				
FILE DRAWING NUMBER 2020-IES-NM110-XX-DR-E-6004							REV. P03

**Appendix 2: Car Park 26 Phase 1, drawing no.
20200-AFL-NM110-XX-DR-A-2019
Rev C2**



CP26_Parking Schedule Per Bay Type New Spaces		
Description		Total
EV Parking Bay 2.4 x 4.8m	36	
Standard bay 2.4 x 4.8m (for future EV provision)	14	
Grand Total: 100		

CP26 EV location Schedule (each location with 2x chargers)		
Description		Count
EV Charging Station location & 2 charging positions		116

CP26 New Steel Bollards		
Type Mark	Description	Count
Post Protection Phase 1		116

Proposed Works Key

- New Yellow Line Road Markings
- Walking Man Road Marking
- New Tactile Paving to comply with current A.D. 18 of Building Regulations & Guidance on the use of Tactile Paving Surfaces. All designations to be reported.
- Location of new EDGING KERB to Engineers specification & detail
- Location of new WOODEN EDGING KERB to Engineers specification & detail
- Location of new Half Battered kerb to Engineers specification & detail
- Location of new double stacked Half Battered kerb to Engineers specification & detail
- Location of Timber rail
- All new Vehicular Traffic Signage to fully comply with Traffic Signs Regulations and General Directions (TSGD) 2002. Proposed Signage shown indicative ONLY & images are 'Crown Copyright'. Civil Engineer to provide compliant signage.
- Remove Fixed Bollards
Existing positions are indicative only.
- New Fixed Bollards
To be installed @ max. (TBC) ctrs site wide.
- Existing Bollards - to be repositioned
Positions shown are indicative only.
- Repositioned Street light - indicative position
All disturbed existing finishes to be made good.
- New Fixed post protection
360 degree post protection.
- EV charging Station - Floor Mounted
Station installed between two car spaces.
- Column protector
Installed to protect the EV charging Post.
- Signs to be installed to direct pedestrians and provide information on site development. Brief & Specification to be agreed.
- 'Blue badge holder only' sign on post on railing.
- New road gully, refer to Structural Engineers information for position and specification. REMOVE IF NOT REQUIRED.
- Railing 1100mm Height
Type 3a = 500m Length, Type 3b = 1000m Length, Type 3 = 2000m Length
- Soft Landscaping - Topsoil & Seed
- Resin Footpath - Refer to Engineers Detail Drawings & Specification.
- Carriageway Construction - Refer to Engineers Detail Drawings & Specification.
- Carriageway Construction Gravel Grid - Refer to Engineers Detail Drawings & Specification.
- Floodlights Column Mounted - refer to SIS Drawing and Specification. 20200-ASE-XX-XXX-TS-E-5001
- POF Play and display Machine. Refer to SIS drawings and specification. No Further Requirement.
- 2.4m x 4.8m wide parking bay
- 2.4m x 4.8m wide EV parking bay with 450mm zone for charge point facility (shared between 2 bays) and 250mm zone behind space.
- 3.6m x 4.8m wide wheelchair parking bay
TRUST TO CONFIRM IF WHEELCHAIR SYMBOLS SHOULD BE REMOVED FROM SOME BAYS

Specifications

Refer to refer to AFL Drawing No: 20200-AFL-INZ-ZZ-DR-A-6040 for Bollard Details
Refer to refer to AFL Drawing No: 20200-AFL-INZ-ZZ-DR-A-6041 for Railing Details
General Notes:

- Refer to Specification document 20200-AFL-INZ-ZZ-SP-A-000X TBC For Specifications
- To be read in conjunction with Curbs drawings
- 20200-CUR-MSCP-EX-DR-D-8511 & 20200-CUR-INZZZ-DR-D-04072 - TCP05
- To be read in conjunction with A&E Engineering drawings: 20200-ASE-SSZ-XX-DR-E-7000 - TCP01 During & External Lighting Layout 20200-ASE-ANZ-XX-DR-E-7001 - TCP05 During & External Lighting Layout

NOTES
All dimensions and levels to be checked on site.
Any discrepancies are to be reported to the Architect before any work commences.
This drawing shall not be scaled to ascertain any dimensions, work to figured dimensions only.
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DOCUMENTS
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SOFTWARE INTEROPERABILITY
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AFL does not accept liability for any loss or degradation of any information held in the drawing resulting from the translation from the original file format to any other file format or from the recipients reading of it in any other programme.

THIS DRAWING IS BASED ON THE FOLLOWING MODELS:

Model	By	Issued on
Structural Precast	FINCANN	
Structural	CURTINS	
MEP	HAFFICK	
Landscape	GILLIES	

GA Plan Key

- Whiteline Markings
- Out of Scope Area
- Car Park Carriageway Surface Finish
- Assumed Phase Boundary
- Remove Existing Items



REV.	DESCRIPTION	DATE	DRW.	CHK.
P05	SPACE PROVIDED FOR FEEDER PILLARS	18.06.23	KC	JW
P04	REVISED TO MOVE EVS ALL TO NORTH SECTION OF CP ACCESSIBLE BAYS	15.06.23	KC	JW
P03	36 EVs LOCATED ALONG FOOTPATH	12.05.23	KC	JW
P02	EV SPACE SETTING OUT AMENDED	06.02.23	KC	JW
P01	SKETCH PROPOSAL FOR CARPARK 26	22.12.22	KC	JW
C2	ONE-WAY DIRECTION, PEDESTRIAN WALKWAYS & COLUMN PROTECTION AMENDED	06.07.23	KC	JW
C1	INCORPORATING COMMENTS FROM CLIENT	03.07.23	KC	JW

NHS
Manchester University
NHS Foundation Trust

APPOINTED PARTY LOGO/INFORMATION

MORGAN SINDALL
AFL architects

PROJECT

NMGH - Multi Storey Car Park

TITLE

Carpark 26 - Phase 1

STATUS

S4

PURPOSE OF ISSUE
For Construction

DRAWN BY

KC

CHECKED BY

JW

DATE

06.07.23

SCALE (@A0)

As indicated

PROJECT NUMBER

203112

FILE DRAWING NUMBER

20200-AFL-NM110-XX-DR-A-2019

REV.

C2

**Appendix 3: Car Park 26 Phase 2, drawing no.
20200-AFL-NM110-XX-DR-A-2020
Rev C2**

NOTES

All dimensions and levels to be checked on site

Any discrepancies are to be reported to the Architect before any work commences

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THIS DRAWING IS BASED ON THE FOLLOWING MODELS:

Model	By	I based on
Structural Precast	FINCARR	
Structural	CURTIS	
MEP	MEPTECH	
Landscape	GILLIES	

CP26_Parking Schedule Per Bay Type New Spaces Phase 2 Complete		
Description		Total
EV Parking Bay 3.2 x 4.8m		150
Street Use	150	

CP26 EV Charger Schedule (each location with 2x chargers) Phase 2 Complete		
Description		Count
EV Charging Station location 3.1 x 1 charging positions		75
EV Charging Station location 3.2 x 2 charging positions		40

CP26 New Street Subjects Phase 2 Complete		
Type Mark	Description	Count
	Post Protection Phase 2	31

Proposed Works Key

	New Yellow Line Road Markings.
	Walking Man Road Marking.
	New Tactile Paving to comply with current A.D. 18 of Building Regulations & Guidance on the Use of Tactile Paving Surfaces. All designations to be reported.
	Location of new EDGING KERB to Engineers specification & detail
	Location of new WOODEN EDGING KERB to Engineers specification & detail
	Location of new Half Battered kerb to Engineers specification & detail
	Location of new double stacked Half Battered kerb to Engineers specification & detail
	Location of Timber rail
	All new Vehicular Traffic Signage to fully comply with Traffic Signs Regulations and General Directions (TSRGD) 2002. Proposed Signage shown indicative ONLY & images are 'Crown Copyright'. Civil Engineer to provide compliant signage.
	Remove Fixed Bollards Existing positions are indicative only.
	New Fixed Bollards To be installed @ max. (TBC) ctrs site wide.
	Existing Bollards - to be repositioned Positions shown are indicative only.
	Repositioned Street light - indicative position All disturbed existing finishes to be made good.
	New Fixed post protection 360 degree post protection
	EV charging Station - Floor Mounted Station installed between two car spaces
	Column protector Installed to protect the EV charging Post
	Signs to be installed to direct pedestrians and provide information on site development. Brief & Specification to be agreed.
	Blue badge holder only sign on post on railing
	New road gully, refer to Structural Engineers information for position and specification. REMOVE IF NOT REQUIRED.
	Railing 1100mm Height Type 3a = 500m Length, Type 3b = 1000m Length, Type 3 = 2000m Length
	Soft Landscaping - Topsoil & Seed
	Resin Footpath - Refer to Engineers Detail Drawings & Specification
	Carriageway Construction - Refer to Engineers Detail Drawings & Specification.
	Carriageway Construction Gravel Grid - Refer to Engineers Detail Drawings & Specification.
	Floodlights Column Mounted - refer to SIS Drawing and Specification. 2020-ASE-XX-XXX-TS-E-5001
	POF Play and display Machine. Refer to SIS drawings and specification. No Further Requirement.
	2.4m x 4.8m wide parking bay
	2.4m x 4.8m wide EV parking bay with 450mm zone for charge point facility (shared between 2 bays) and 250mm zone behind space
	3.6m x 4.8m wide wheelchair parking bay TRUST TO CONFIRM IF WHEELCHAIR SYMBOLS SHOULD BE REMOVED FROM SOME BAYS

Specifications

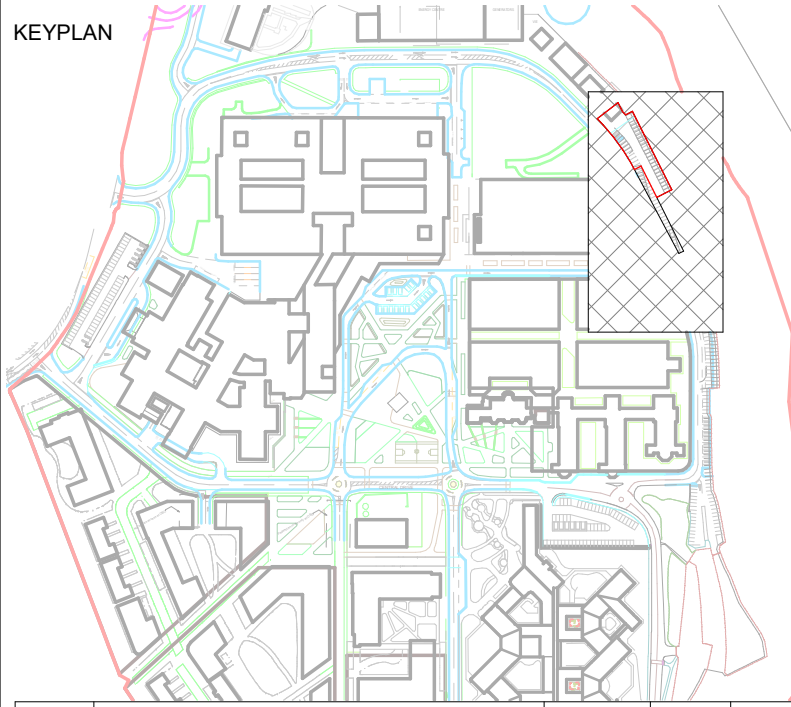
Refer to refer to AFL Drawing No: 2020-AFL-INZ-ZZ-DR-A-6040 for Bollard Details
Refer to refer to AFL Drawing No: 2020-AFL-INZ-ZZ-DR-A-6041 for Railing Details
General Notes:

- Refer to Specification document 2020-AFL-INZ-ZZ-SP-A-000X TBC For Specifications
- To be read in conjunction with Curbs drawings
- 2020-CUR-MSCP-EX-DR-D-8511 & 2020-CUR-MSCP-EX-DR-D-8522 - TCP01
- 2020-CUR-MSCP-EX-DR-D-8511 & 2020 CUR INZZ DR C 04072 - TCP05
- To be read in conjunction with A&B Engineering drawings
- 2020-ASE-SSZ-XX-DR-E-7000 - TCP01 During & External Lighting Layout
- 2020-ASE-ANZ-XX-DR-E-7001 - TCP05 During & External Lighting Layout

GA Plan Key

	Whiteline Markings
	Out of Scope Area
	Car Park Carriageway Surface Finish
	Assumed Phase Boundary
	Remove Existing Items

KEYPLAN



REV.	DESCRIPTION	DATE	DRW.	CHK.
P02	SPACE PROVIDED FOR FEEDER PILLARS	15.06.23	KC	JW
P01	FIRST ISSUE	15.06.23	KC	JW
C2	ONE-WAY DIRECTION, PEDESTRIAN WALKWAYS & COLUMN PROTECTION AMENDED	06.07.23	KC	JW
C1	INCORPORATING COMMENTS FROM CLIENT	03.07.23	KC	JW



APPOINTED PARTY LOGO/INFORMATION

MORGAN SINDALL

AFL architects

PROJECT

NMGH - Multi Storey Car Park

TITLE

Carpark 26 - Phase 2

STATUS

S4

PURPOSE OF ISSUE

For Construction

DRAWN BY

KC

CHECKED BY

JW

DATE

06.07.23

SCALE (@A0)

As indicated

PROJECT NUMBER

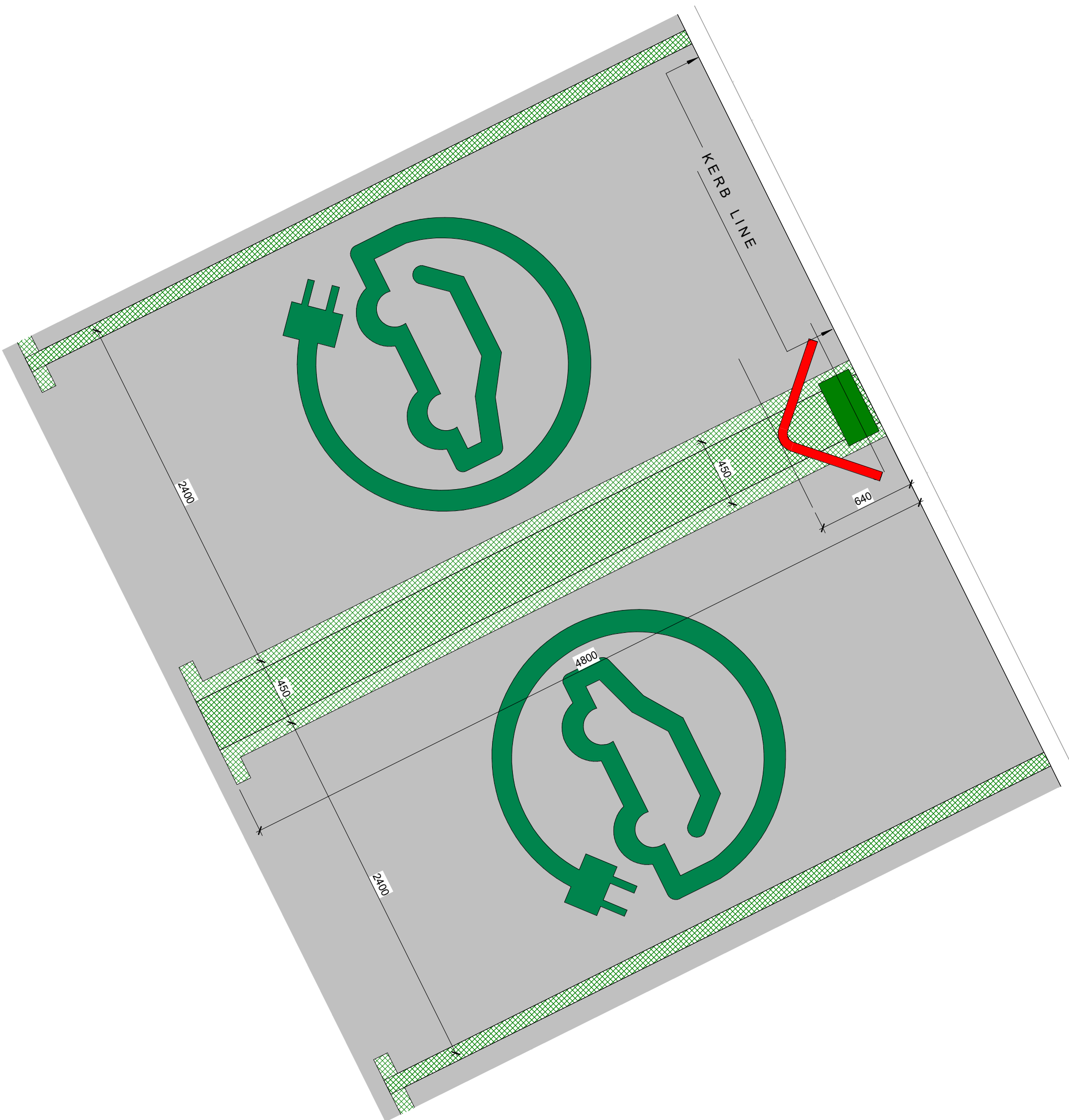
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FILE DRAWING NUMBER

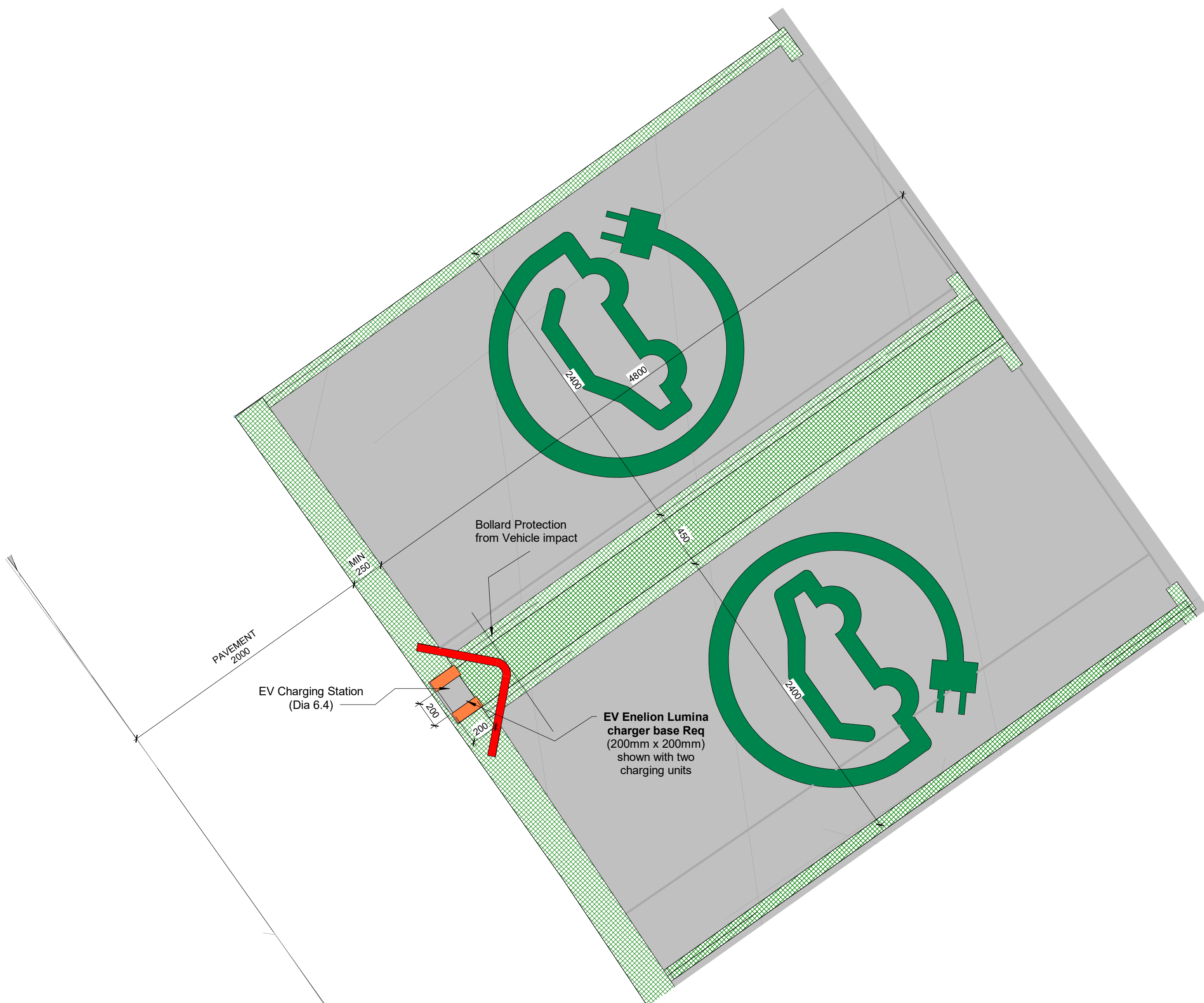
20200-AFL-NM110-XX-DR-A-2020

REV.

C2



90_Site Layout - Carpark 26 - Typical EV bay setting out along fence Phase 2 - East side only



90_Site Layout - Carpark 26 - Typical EV bay setting out for ALL Phase 1 and along north and west



20_Site Layout - Carpark 26 - Total Number of Spaces - Sheet XX-DR-A-2020

Appendix 4: Lumina Specification Sheet

LUMINA

Easy to use,
convenient to install.

Modular framework allowing for a 15-minute install. Full user-control over a dedicated mobile app. Slick, minimalist looks recognized by world-renowned design awards' jury panels.

We're glad to introduce the LUMINA
- Enelion's new-generation
AC charging station.



Minimalistic design



15-minute installation process



User-control
via mobile application



Dynamic Load Balancing*



Various housing color
and material variants



User friendly

*option

MINIMALISTIC FORM RECOGNIZED BY WORLD-RENOUNDED DESIGN AWARDS' JURY PANELS

Aesthetics and durability are paramount to us. For that reason, along with solid anodized aluminum housings, we decided to use polycarbonate composite - hardened synthetic material, highly resistant to scratches.

MODULAR STRUCTURE

Modular build provides a perfect solution facilitating a single base-piece and interchangeable charging heads.

READY TO WORK IN 15 MINUTES

Your EV charger will be ready to perform online within 15 minutes from unboxing. That's how short it takes to install the Lumina.

MOBILE APP

Charging session scheduling and monitoring, power output adjustment, authorization settings, remote power-plug relay with delayed-start option.

ADVANCED TECHNICAL SOLUTIONS

Intelligent charging-power limitation system that enables splitting the power dynamically between units in a chain, so the total charging power does not exceed overall output from the grid.

OFF-THE-WALL MOUNTING OPTIONS

A distinctive concaved backplate design makes it possible to install the Lumina on diverse sites. Aside from all flat surfaces, one can mount it on lampposts, columns, signposts and various types of poles. This attribute enables easy installation by making use of street furniture and avoiding costly landscape rearrangements.

LUMINA

Modular structure

LUMINA
CABLE
PREMIUM

silver
anodized
aluminum



LUMINA
SOCKET
PREMIUM

silver
anodized
aluminum



LUMINA
BACKPLATE



OPEN

CLOSE



LUMINA
CABLE
PREMIUM

black
anodized
aluminum

LUMINA
SOCKET
PREMIUM

black
anodized
aluminum



LUMINA
SOCKET

polycarbonate
housing



Enelion Lumina App available at

GET IT ON
Google Play

DOWNLOAD ON THE
App Store



1st place in a New
Technology category
Good Design 2021



IF DESIGN AWARD 2022

LUMINA

Structure, features, advantages

Mobile App management

Install the Enelion Lumina app on your mobile and enjoy remote control and management over charging sessions' scheduling, power output adjustment, authorization settings and power-plug relay with delayed-start option.

Secure limited access

Grant users' access to your charging station with authorized RFID cards or back-end system settings. Lock or unlock the charger remotely to allow or block charging.

Convenient billing system

Lumina has a built-in three-phase energy meter that enables billing individual loading sessions with over 99% accuracy. Pre-installed MID-certified meter is also available to be integrated within the unit.

Embedded PLC communication ISO 15118 compliance

to be implemented: bilateral vehicle communication, connectivity with Energy Management Systems.

1-phase and 3-phase use Type2 plug

Lumina is equipped to charge all existing and future electric vehicles using Type2 plugs.

Built-in memory unit with backup settings*

Restore your settings easily in case of head replacement.

Dynamic Load Balancing

Intelligent charging power limitation system that enables splitting the power dynamically between units in a chain, so the total charging power does not exceed overall output from the grid.

Robust structure

High-quality components along with a well-thought design, IP54 ingress protection rate and a high, 10th degree of impact protection (IK10) make Lumina the perfect solution for public use.

Battery-powered control unit standby*

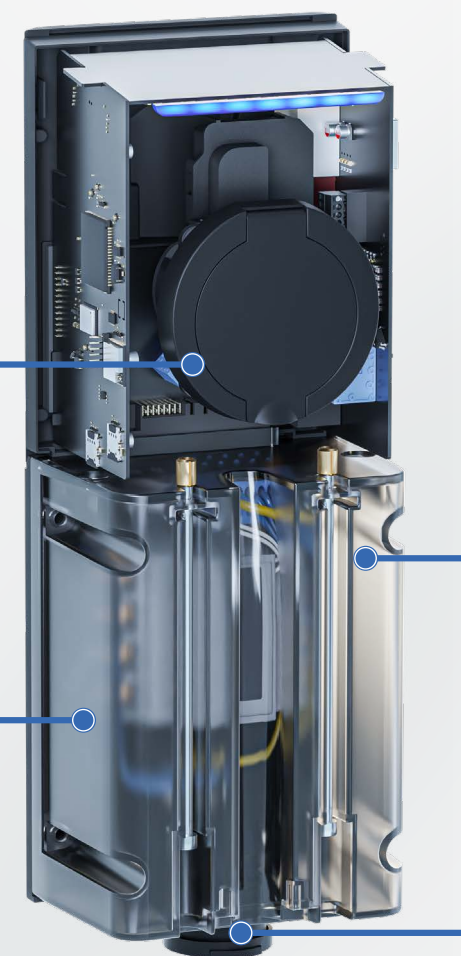
In the event of a power-cut, the charger supports the communication module for up to 1-hour operation time and provides an option to access it remotely, cease charging and disconnect the cable (RFID authorization / mobile app).

Remotely-controlled power-plug*

A non-public station can be equipped with a schuko socket, enabling the user to simultaneously charge the car and, for example, an electric scooter.

Enables the power supply of single-phase devices with max. current consumption up to 16 A.

It is possible to remotely control the socket operation (On / Off + delay) via the application.



*option

Technical specification



Housing	Polycarbonate, Anodized aluminum*
Ingress Protection rate	IP54
Impact protection (IK rate)	IK10
Flammability class	UL94-V0
Charging connector type	Lumina Socket - Type2 Socket, Lumina Cable - Type2 connector with 4,7 m cord
Residual current protection	Embedded residual current monitor - Enelion RCMB 6 mA DC
Energy metering	Integrated 3-phase energy meter >99 % accuracy
Certified electricity meter (MID)	Impulse* - possible to install inside the housing
User interface	- multi-color LED strip EVC status indication - Dedicated app connecting station via WiFi AP 2.4 GHz b/g/n
Online communication unit	- Integrated LTE/4G modem - WiFi 2.4 GHz b/g/n - direct access point to the station with an option to hide the AP and connect the station to local Wi-Fi network
OCPP	compliance with OCPP 1.6 J protocol
Authorization	- built-in RFID / NFC reader - Mifare Classic / Free Charge - dedicated app connected via WiFi AP 2.4 GHz b/g/n
Current /Charging power	up to 74 kW at 32 A 1-phase up to 22 kW at 32 A 3-phase (TN system)
Charging voltage	3 x 400 V AC/ 230 V AC (±10 %)
Supply voltage	3 x 400 V AC/ 230 V AC (±10 %) (TN/IT) Possibility of connecting the cable from the top, bottom and the back of the station
Other features	- configuration with no additional tools - remotely controlled schuko outlet (max 2000W/10A)* - remote start / stop, delay and charging schedule - temperature and humidity monitoring inside device
Operating temperature	-30°C / +55°C
Maximum altitude for installation	2000 m
Height	390 mm
Depth	133 mm
Width	155 mm
Weight	3 kg / 4,2 kg (depending on device-version)
Compliance	2014/53/EU (RED) 2011/65/EU (RoHS) 2014/30/EU (EMC) 2014/35/EU (LVD)

*option

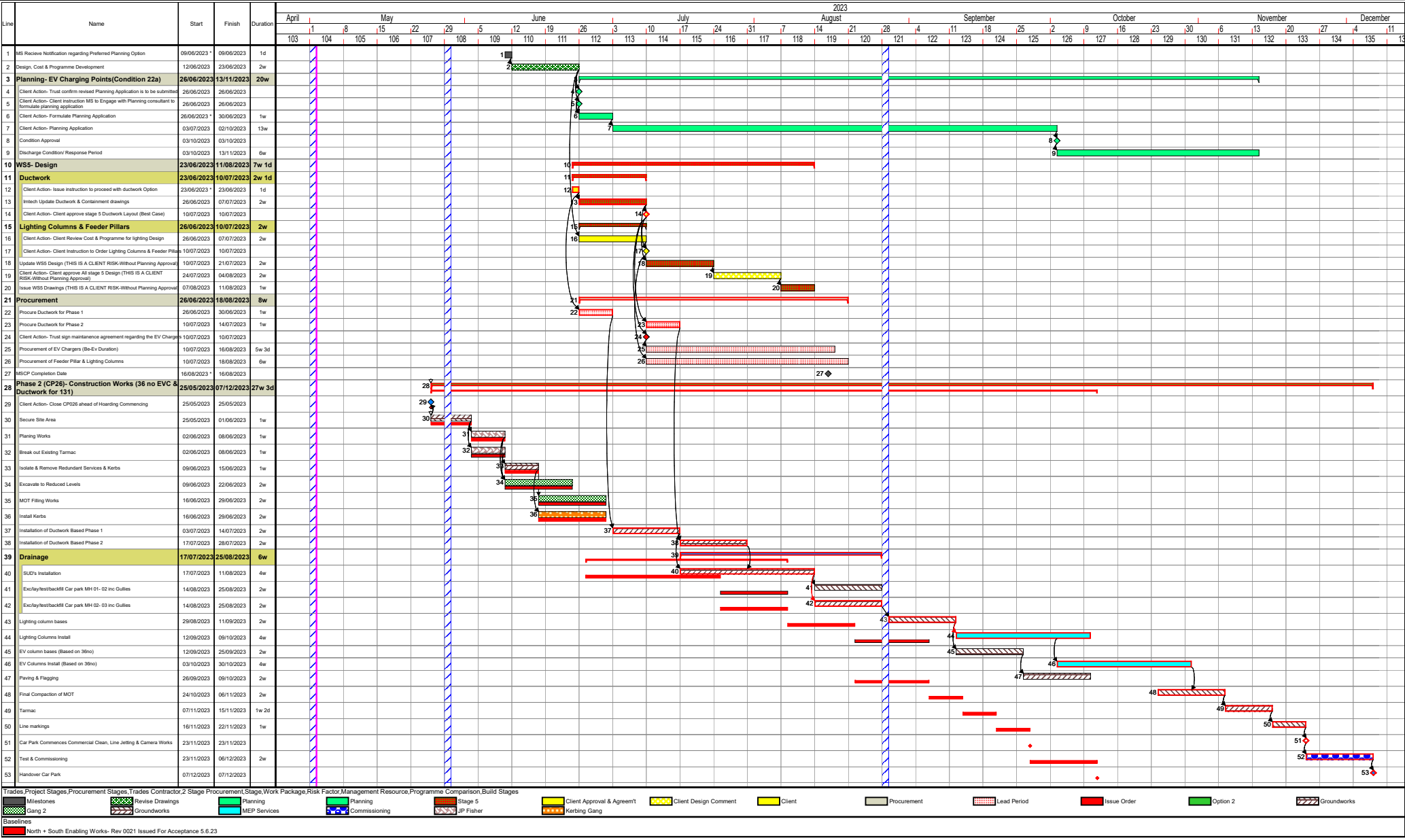
Appendix 5: Lumina Mounting Post



Appendix 6: Contract Programme 26.06 (doc ref. 20200-MSC-INZ-EX-PR-W), prepared by Morgan Sindall

CP026- Inc EV Chargers & Lighting Columns

Sheet 1 of 1



100% Safe	Comment :	Prepared by: D Burrell	Chart Filter: None	
	Rev Comment : Issued For Acceptance	Approved by: I Park	Issue Date : 15/12/2020	Prog No: 20200-MSC-INZ-EX-PR-W
			Rev Date : 26/06/2023	Rev : 0022

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